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PERSONALITY CORRELATES OF ACADEMIC ADJUSTMENT.

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AN ATTEMPT WAS MADE TO SHOW HOW NONINTELLECTIVE PERSONALITY VARIABLES ARE RELATED TO ACHIEVEMENT IN COLLEGE AMONG STUDENT GROUPS OF HIGH, AVERAGE, AND LOW INTELLECTUAL ABILITIES. THE DESIGN OF THE STUDY RELATED PERSONALITY TO GRADES WITHIN DIFFERENT LEVELS OF ABILITY TO DETERMINE WHETHER RELATIONSHIPS VARIED FROM ONE LEVEL TO ANOTHER. APPROXIMATELY 7,500 SUBJECTS AT 3 DIFFERENT UNIVERSITIES WERE TESTED. THE RESULTING DATA WERE STUDIED BY ANALYZING LEVELS OF ABILITY AND CONFIGURAL VARIABLES OF PERSONALITY AS THEY RELATED TO STUDENT GRADE POINT AVERAGE. THERE WERE NO IDENTIFIABLE PATTERNS OF PERSONALITY CHARACTERISTICS WHICH SEEMED TO BE CONSISTENTLY RELATED TO SUCCESS IN COLLEGE, OTHER THAN A TENDENCY FOR MORE INTELLECTUALLY ORIENTED MALES TO OBTAIN HIGHER GRADES. THERE WAS SOME INDICATION, HOWEVER, THAT PERSONALITY IS MORE CLOSELY ASSOCIATED WITH ACHIEVEMENT IN THE MIDDLE RANGES OF ABILITY THAN IS ABILITY ITSELF. THIS FUNDING PROVIDED A COMPLETELY DIFFERENT AREA APPARENTLY DESERVING FURTHER STUDY. IT WAS ALSO SUGGESTED THAT A SECOND SIGNIFICANT CONCLUSION BE PURSUED--THAT APPARENTLY DIFFERENT INSTITUTIONS PLACE VARYING EMPHASIS UPON THE IMPORTANCE OF PERSONALITY IN COLLEGE ACHIEVEMENT. (JH)

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PERSONALITY CORRELATES OF ACADEMIC ADJUSTMENT

Cooperative Research Project Number 805

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Introduction

College achievement, as indicated by overall grade-point average (GPA), consists of several more or less well-established variance components. The major component, as demonstrated by over thirty years of research on the prediction of college grades (Harris, 1939; Garrett, 1949; Fishman & Pasanella, 1960), is intellective. Measures of scholastic aptitude and achievement and indices of previous performance, such as high school GPA and class rank, correlate in the 50s and 60s with college achievement, which means that they account for approximately 25 to 35 per cent of the total variance in the criterion (Fig.1). These estimates are based upon relationships between predictors (measures of aptitude and achievement) and criteria (GPA) which are continuous variables, unrestricted in range, and linearly related, as specified in the zero-order and multiple regression models. Stern, Stein, and Bloom (1956) have questioned the appropriateness of these models for the prediction of college achievement, because they allow high scores to compensate for low ones, but other designs and procedures are seldom used.

Insert Figure 1 about here

A second component in college achievement, the nature of which is not nearly as well-known as the first, is the nonintellective, which includes personality and study skill variables. Its existence is generally inferred from three sets of facts or observations. First, only a portion of the variance in college achievement is attributable to ability factors and measurement errors. The remaining variance presumably is associated with other, relatively independent variables. Second, an

COLLEGE ACHIEVEMENT

(GRADE POINT AVERAGE, GPA)

Intellective (35 %)	Non-Intellective (15 %)	Unknown (40 %)	Error and Other (10 %)

optimally-weighted combination of measures of intellective factors and previous academic performance yields higher correlations (Mdn r = .64) with college GPA than either predictor alone (Mdn r = .50) (Fishman & Panasella, 1960). Test scores combined with grades evidently contribute variance on the specific factors in each, such as attitudes toward examinations, achievement motivation, and persistence, which are distinct from ability per se. Finally, there is some empirical evidence which shows a slight correlation (Mdn r = .22) between personality variables, as assessed by the Rorschach, Minnesota Multiphasic Personality Inventory (MMPI), and similar measures, and college achievement. Also, there are moderately high (Mdn r = .47) relationships between scores on study habits inventories and GPA (Fishman & Panasella, 1960). On the basis of available research, probably the best estimate of variance in college achievement contributed by nonintellective factors is between five and 15 per cent (Fig.1).

The variance which remains in college achievement comes from two sources. Part of it is error variance which stems from the unreliability of grades, and part of it represents differences in biographical factors, such as size of family, religion, size of community, campus activities, etc. To minimize these sources of variance in predicting college achievement most studies use overall GPA rather than grades in particular courses, which are less reliable, and gather data on large Ns, which tends to randomize the effects of the demographic variables. The result is that the variance attributable to these components in college achievement probably amounts to only about 10 per cent of the total (Fig.1).

Problem

This analysis of the various components in college achievement makes readily apparent the discrepancy which exists between the amount of

explainable and unexplainable variance in GPA. Almost one-half of the total variance cannot be predicted from intellective and nonintellective factors or accounted for by errors of measurement. Other variables than these, which are unknown at present, may be making an unique contribution to academic performance, but it is not likely, since the number and variety of variables which have been studied practically constitutes an exhaustive ennumeration (Harris, 1939; Garrett, 1949). Another possibility is that better measures of intellective factors will result in higher correlations with college grades, but again this explanation is not very probable, because the newest tests yield correlations of about the same magnitude (r = .55 to .60) as the old ones (e.g., Cooperative Test Division, 1962). The most likely hypothesis is that nonintellective factors contribute more to college achievement than has been established by the methods of analysis used in previous studies.

That different approaches to analyzing the nonintellective component in college performance may have considerable promise is suggested by two new types of research designs: the configural and the within-levels. Two studies of the relationship between the MMPI and GPA by Drake and Oetting (1957) and Drake (1962) illustrate the configural approach, which basically involves the identification of scale patterns through a process of iteration. Base rates for high and low point scales in a criterion group, such as "underachievers", are compared with percentages in a normative sample and differentiating scale patterns are identified. For example, one such pattern which Drake and Oetting (1957) found on the MMPI (89-0 with 5 high or low)[1] characterized college students who lacked academic motivation and who also obtained below average grades. Similarly,

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[1] Based upon Hathaway's (1947) method of coding MMPI profiles.

another pattern (49 with 5 neither high nor low) which Drake (1962) was successful in establishing differentiated high ability underachievers from a comparison group of normal achievers. The configural approach is effective because, as Drake and Oetting (1957, p. 246) point out, "In order to predict behavior for a group, the group must be relatively homogeneous for the behavior. Consequently the group must be selected on the basis of as many underlying traits as possible."

Essentially the same rationale underlies the within-levels approach, which segregates groups on levels of an intellective or nonintellective factor and predicts grades within these levels. Two studies, in which different factors were used for the "levels" variable, exemplify this design. Goodstein and Heilbrun (in press) constituted high, average, and low ability groups on a measure of scholastic aptitude and then correlated EPPS scales with GPA within each group. They obtained differences between the groups in correlational patterns which were consistent with theoretical expectations and which suggested that relationships between nonintellective variables and grades are greater in homogeneous than in heterogeneous ability groups. Hoyt and Norman (1954) conducted a similar investigation, but they formed their groups on a level of adjustment variable, as defined by number of T-scores over 70 on the MMPI, instead of ability. Their analysis was based upon within-levels correlations between the Ohio State Psychological Test and GPA, which were considerably higher in the better-adjusted groups. They concluded from their findings, much as Drake (1962) did from his, that " 'maladjustment' significantly affects college achievement by producing both under- and over-achievement" (Hoyt & Norman, 1962, p. 98).

Purpose of Study

The present study was designed to investigate further the role of nonintellective factors in college achievement through extensions and refinements of the configural and within-levels methods of analysis. The major theoretical assumption of the study was that nonintellective variables may operate to either facilitate or interfere with the individual's efficient use of his ability in academic pursuits. Consequently, the hypotheses of the study covered a wide range of possible relationships between various aspects of personality functioning and college achievement, including the correlation of adjustment mechanisms with GPA at different ability levels and the association of adjustment status with under- and over-achievement.

Procedure

Collection of Data

Institutions. Three institutions participated in the present investigation--the State University of Iowa, the University of Wisconsin, and the University of Minnesota. These three institutions appeared rather similar in their entrance requirements, their admission policies, their grading procedures, and in their public image. Further, all three institutions were state supported, were located in the Midwestern United States, and would presumably draw their students from rather similar academic and socio-economic backgrounds.

Samples. Two of the four samples used in this investigation were drawn at the State University of Iowa--the Fall 1958 and Fall 1959 freshmen classes. All students in these samples were admitted as freshmen to the College of Liberal Arts, since the several other colleges at the University do not ordinarily admit freshmen. The Fall 1959 freshman

classes admitted to the liberal arts colleges at the Universities of Wisconsin and Minnesota constituted the other two samples. Only those who had completed one full academic year of work and for whom complete psychometric data were available (see below) were included in these samples.

Listed separately by sex, the Ns in each of the samples were:

	Males	Females	Total
Iowa (1958)	714	666	1,380
Iowa (1959)	796	786	1,582
Wisconsin	1,695	1,364	3,057
Minnesota	783	688	1,471
	3,986	3,504	7,490

Measurement of Variables

The Personality Measures. Because of the widespread usage of the MMPI in large-scale freshman testing programs as well as in individual counseling at the college level, the decision was made to use this test as the personality assessment instrument in the present study. The availability of MMPI scores at several institutions both simplified the collection of data for the purposes of the study and suggested that significant research findings might have more extensive applicability.

The booklet form of the MMPI had been routinely administered at the three institutions taking part in the study as part of the regularly-scheduled freshman-orientation testing program. IBM answer sheets were used and were scored at the three institutions on IBM 805 test scoring machines for the three validity scales and the ten clinical scales (including Si). Descriptions of these scales and summaries of their reliabilities and validities can be found in Dahlstrom and Welsh (1960).

Prior to any analysis of the data, the ten raw clinical scale scores for each S, which had been punched onto IBM data cards, were transformed into T-score equivalents by means of a previously developed computer program (Ladd, Dolch, and Goodstein, 1960). The validity scale scores were left in raw score form.

The Aptitude Measures. Since the three institutions participating in the investigation did not use the same entrance test battery, it was not possible to use the same aptitude measure.

1) Iowa. The entrance test battery used at the State University of Iowa during the Falls of 1958 and 1959 included a 60-minute English composition test, a 90-minute reading comprehension test, and a 60-minute basic mathematics test. The raw scores on these three objective, locally-developed, multiple-choice tests were added together and converted into percentile equivalents based upon the performance of the groups tested. The percentile rank of this composite score was used as the aptitude measure for the Iowa samples.

2) Wisconsin. During the Fall of 1959, the University of Wisconsin used the College Qualification Test (CQT), published by the Psychological Corporation, as part of its entrance battery, and the CQT total raw score was used as the aptitude measure for the Wisconsin sample.

3) Minnesota. The University of Minnesota used the Minnesota Scholastic Aptitude Test (MSAT) as part of its entrance battery during the Fall of 1959. The total raw score on the MSAT, a locally-developed aptitude measure similar in content to the Ohio State Psychological Examination, was used as the aptitude measure for the Minnesota Sample.

Grade Point Average (GPA). For each sample, the first-year grade point average was used as the measure of academic achievement. This average, supplied by the Registrar at each institution, was computed as follows: A = 4, B = 3, C = 2, D = 1, and F = 0. The course grade was multiplied by the hours of credit, and the resultant total was then divided by the total number of hours completed, with the remainder carried out to two decimal points. While it had been expected to also use the first semester GPA, preliminary research indicated that the average correlation between first semester and first year GPA exceeded .90. Consequently, the first-year GPA was selected for use as the more reliable of the two measures.

Methods of Analysis

Within-levels. Following Goodstein and Heilbrun (in press), it was decided to constitute levels on the aptitude measures and then correlate the personality variables with achievement within these levels. In order to constitute levels with equal Ns of at least 100 each, which would be necessary for correlational analysis, and simultaneously maintain an equal number of levels among samples, it was necessary to divide each sex sample into sixths. The resultant groups varied in their Ns from 111 to 282. Within each of the sixths, means and standard deviations (SDs) were computed for the 13 MMPI variables, the aptitude measure, and GPA. Fifteen by 15 intercorrelational matrices were constructed within each sixth and, for each MMPI variable, the partial correlation with GPA, holding aptitude constant, was also obtained. Within each sixth the multiple correlation (R) between the MMPI variables and GPA was determined together with the Beta weights for each MMPI variable.

Total group. For each of the four total samples, combined over aptitude levels, the means and SDs were computed separately by sex for the MMPI

variables, aptitude, and GPA. Complete intercorrelation matrices were constructed for each of these total groups, and for each MMPI variable the partial correlation with GPA, holding aptitude constant, was also computed. For each of the total groups the R for the MMPI and aptitude variables versus GPA was determined, together with the Beta weights for each of the predictor variables.

Configural Analysis. Within each sixth of the male and female Iowa samples, for both 1958 and 1959, three subgroups were identified on the basis of GPA. These subgroups had equal Ns and were labelled high, average, and low achievers, depending upon the level of their GPAs. The differences in both MMPI profile elevation and shape among these three subgroups were then determined by use of Type I analysis of variance designs (Lindquist, 1953), as suggested by Block, Levine, and McNemar (1951). In this statistical model the Blocks, Columns, and Rows effects correspond to differences between the three achievement subgroups, the 13 MMPI scales, and the Ss within groups, respectively. The Wisconsin and Minnesota samples were to be used for cross-validation of any significant profile patterns.

Data Processing. All of the major statistical analyses were completed at the University of Iowa Computer Center using either the IBM 650 or the IBM 7070 computers. Available standard IBM library programs were adapted for the purposes of this investigation.

Results

Within Levels and Total Group Analyses

The Ns, means and SDs for each of the MMPI variables, the aptitude measures, and GPA for each sixth of the male samples and for the total male samples are presented in Table 1 and for each sixth and the total

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Insert Tables 1 & 2 about here

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female samples in Table 2. Although the present study is not primarily concerned with differences among the three institutions, the marked similarity of their means and SDs for the within-levels and total samples is noteworthy. The means of the 13 MMPI variables tend to be almost identical among the four samples within each level, typically varying only a few T-score units. The mean GPAs are also quite similar within each of the sixths, while the means of the aptitude measures are quite different among the three institutions. It should be recalled, however, that these are scores on instruments with quite dissimilar scoring procedures and that the levels were constituted on the basis of these scores within each sample.

It is also apparent that, from level to level, there do not appear to be any striking differences in the mean MMPI scores within any of the institutional samples. The mean differences in the MMPI clinical scale scores are typically one or two T-score units, and there is no meaningful pattern to these differences. The means of the aptitude measures, naturally, show a systematic increment from level to level within the institutional sample, reflecting the procedures used in constituting the levels. The mean GPAs show a concomitant increment from level to level indicating that those Ss in the higher aptitude levels were systematically receiving the higher grades.

The 15 by 15 intercorrelational matrices (13 MMPI scores, the aptitude score, and GPA) for each of the sixths and for each of the totals are presented in Tables A through CCC in the Appendix of this report. Included in these tables are the partial rs for each MMPI variable with GPA, holding aptitude constant. Within each of the sixths a comparison of these partial rs with the equivalent zero-order rs between the MMPI variables and GPA revealed no consistent difference between these two statistics, suggesting that in these samples the relationships between the several MMPI variables

and GPA were independent of aptitude.

It can be further noted in these tables that the correlations between the aptitude measures and each of the MMPI variables generally fluctuated around zero, both within the sixths and for the totals (summarized in Table DDD in the Appendix), indicating the statistical independence of the personality and aptitude measures. Consequently, within the sixths, the multiple correlations did not include the aptitude measure, since these data showed the predictive variance attributable to aptitude could be ignored.

The Rs between the 13 MMPI variables and GPA within each level for each sample are presented in Table 5, and the Beta weights for each of the MMPI variables involved in these Rs are presented in Table 3 for the males and Table 4 for the females. For the male sixths, 13 of the 24 Rs are

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Insert Tables 3-5 about here

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statistically significant, but an inspection of the Betas in Table 3 suggests that there are no striking consistencies either from level to level or from sample to sample in the patterns of MMPI variables which contribute to the significant variance in GPA. The most obvious exceptions to this generalization are the eight positive, significant Betas for the Mf scale, most of which are in the regressions for the Wisconsin sample. The Pd scale yields five significant Betas, of which four are negative in sign and one positive, and the Sc scale yields four significant negative Betas.

For the female sixths, 10 of the 24 Rs are statistically significant, but again no striking consistencies in the Betas of the MMPI variables are suggested by an inspection of Table 4. There are five significant negative

Table 1

Means and SDs for the MMPI, Aptitude Measure, and First Year GPA

for Each Sixth and Each of the Total Male Samples

Sample	L		F		K		Hs		D	
	M	SD	M	SD	M	SD	M	SD	M	SD
First Sixth[1]										
Iowa (1958)	3.84	2.15	4.09	2.83	14.42	4.43	51.30	7.29	53.38	10.36
Iowa (1959)	3.11	2.27	4.72	4.02	14.45	4.42	53.11	8.47	54.73	12.13
Wisconsin	3.48	2.12	4.82	3.57	14.06	4.59	53.97	8.77	54.34	9.69
Minnesota	3.08	2.18	4.11	3.04	14.34	4.79	50.82	8.58	50.97	10.23
Second Sixth[1]										
Iowa (1958)	3.45	1.85	4.37	3.84	15.24	4.75	51.82	8.40	52.98	9.32
Iowa (1959)	3.39	2.02	3.78	2.85	14.96	4.36	51.46	7.54	51.70	9.70
Wisconsin	3.46	2.05	4.67	3.19	14.69	4.54	54.33	8.77	55.59	9.69
Minnesota	3.10	2.31	3.82	3.38	16.11	4.90	51.68	7.30	49.77	9.51
Third Sixth[1]										
Iowa (1958)	3.31	2.03	3.87	2.68	15.11	4.41	51.26	6.94	52.54	10.24
Iowa (1959)	3.41	1.87	3.65	2.69	15.51	4.23	53.45	7.72	52.96	10.37
Wisconsin	3.33	2.14	4.08	2.97	14.99	4.43	53.34	8.85	53.14	10.53
Minnesota	3.05	2.19	4.37	3.67	15.04	4.98	52.34	7.82	52.87	11.28
Fourth Sixth[1]										
Iowa (1958)	3.03	2.00	4.04	3.17	15.25	4.65	52.34	8.37	53.30	10.35
Iowa (1959)	2.80	1.95	4.08	3.21	14.47	4.38	52.32	7.64	54.77	11.19
Wisconsin	3.36	1.99	4.05	2.95	15.11	4.40	53.82	10.32	54.28	10.75
Minnesota	2.92	1.84	4.30	3.32	14.78	4.38	51.83	8.62	50.57	8.84
Fifth Sixth[1]										
Iowa (1958)	2.87	1.93	3.50	2.39	15.66	4.23	52.78	8.13	50.79	9.21
Iowa (1959)	2.63	1.59	3.45	2.72	15.94	4.01	52.62	8.12	51.39	10.25
Wisconsin	3.41	2.09	4.12	4.38	15.44	4.45	53.22	8.20	54.24	11.34
Minnesota	2.64	1.87	4.41	3.21	14.54	4.78	51.47	8.28	51.04	11.03
Sixth Sixth[1]										
Iowa (1958)	3.50	2.30	3.61	3.26	16.50	4.45	52.88	8.23	50.72	10.41
Iowa (1959)	2.79	1.98	3.95	2.99	15.52	4.76	52.90	8.11	53.63	11.34
Wisconsin	3.22	1.96	3.80	2.54	15.65	4.54	52.22	7.68	55.15	11.45
Minnesota	2.96	1.82	4.19	3.45	15.89	4.87	51.81	6.98	51.41	9.20
Total[1]										
Iowa (1958)	3.33	2.07	3.91	3.08	15.36	4.54	52.06	7.94	52.29	10.06
Iowa (1959)	3.02	1.98	3.94	3.14	15.14	4.40	52.65	7.97	53.20	10.94
Wisconsin	3.71	2.06	4.26	3.23	14.99	4.49	53.48	8.53	54.46	10.93
Minnesota	2.96	2.05	4.20	3.36	15.12	4.83	51.64	7.96	51.09	10.10

[1]Iowa (1958) N=119 for Each Sixth, Total Male N = 714
Iowa (1959) N=133 for Each Sixth, Total Male N = 796
Wisconsin N=282 for Each Sixth, Total Male N =1693
Minnesota N=131 for Each Sixth, Total Male N = 783

Table 1 (Continued)

Means and SDs for the MMPI, Aptitude Measure, and First Year GPA

for Each Sixth and Each of the Total Male Samples

Sample	Hy		Pd		Mf		Pa		Pt	
	M	SD	M	SD	M	SD	M	SD	M	SD
First Sixth[1]										
Iowa (1958)	56.83	6.05	58.05	9.33	57.31	9.83	53.63	8.40	57.92	9.52
Iowa (1959)	55.93	7.57	58.77	10.15	55.13	9.34	54.30	9.77	60.20	11.66
Wisconsin	56.91	7.59	59.16	9.60	57.90	10.78	54.48	9.06	59.21	10.25
Minnesota	54.53	7.62	55.28	9.59	55.05	9.05	52.66	7.91	56.03	10.94
Second Sixth[1]										
Iowa (1958)	56.37	7.76	56.39	9.17	57.36	9.69	53.66	8.62	58.72	11.03
Iowa (1959)	56.02	6.84	57.69	9.30	55.81	9.28	53.43	8.12	56.60	9.03
Wisconsin	57.50	7.59	58.33	9.60	57.97	10.78	54.09	9.06	59.17	10.25
Minnesota	55.56	7.70	55.78	10.45	53.83	9.14	52.18	7.78	54.63	10.00
Third Sixth[1]										
Iowa (1958)	56.04	7.03	57.61	10.50	59.32	9.98	53.64	8.96	57.29	10.70
Iowa (1959)	57.77	7.52	58.30	9.38	58.05	10.15	54.08	7.77	58.20	9.96
Wisconsin	56.22	7.75	58.03	9.19	58.82	9.72	54.80	8.89	57.81	10.13
Minnesota	55.27	8.21	58.35	10.13	56.18	9.59	55.36	9.00	57.60	10.34
Fourth Sixth[1]										
Iowa (1958)	57.85	6.94	58.45	8.96	58.78	9.74	54.61	8.26	59.08	10.49
Iowa (1959)	57.38	7.39	56.55	9.24	59.71	10.12	53.80	8.04	60.68	11.02
Wisconsin	57.14	8.84	57.74	10.43	59.51	10.48	55.06	10.27	57.42	9.37
Minnesota	55.09	8.70	57.82	10.10	55.42	10.40	52.92	8.26	54.40	10.16
Fifth Sixth[1]										
Iowa (1958)	57.67	7.33	57.30	7.85	60.77	9.86	55.08	7.96	58.41	9.64
Iowa (1959)	56.87	7.31	57.14	9.97	59.83	9.86	54.17	7.51	57.24	9.41
Wisconsin	57.54	7.09	58.44	8.71	60.72	9.75	54.70	8.31	58.28	9.37
Minnesota	55.84	8.75	59.15	8.92	59.90	10.65	55.12	8.33	57.29	10.48
Sixth Sixth[1]										
Iowa (1958)	58.12	7.68	58.13	9.01	62.68	10.06	55.92	8.00	56.11	9.18
Iowa (1959)	57.01	7.28	57.05	8.92	62.14	11.00	55.75	8.92	58.56	10.37
Wisconsin	56.82	7.20	56.57	10.05	62.53	9.91	54.92	7.84	57.04	9.47
Minnesota	56.22	6.83	58.47	9.90	60.97	10.65	55.33	8.77	55.95	8.99
Total[1]										
Iowa (1958)	57.23	7.19	57.65	9.19	59.37	10.04	54.42	8.42	57.92	10.17
Iowa (1959)	56.83	7.35	57.58	9.53	58.45	10.27	54.26	8.42	58.58	10.39
Wisconsin	57.02	7.77	58.04	9.72	59.58	10.24	54.67	8.60	58.15	9.89
Minnesota	55.40	7.99	57.47	9.96	56.86	10.27	53.90	8.46	55.97	10.25

[1] Iowa (1958) N = 119 for Each Sixth, Total N = 714
Iowa (1959) N = 133 for Each Sixth, Total N = 796
Wisconsin N = 282 for Each Sixth, Total N =1693
Minnesota N = 131 for Each Sixth, Total N = 783

Table 1 (Continued)

Means and SDs for the MMPI, Aptitude Measure, and First Year GPA

for Each Sixth and Each of the Total Male Samples

	Sc		Ma		Si		Aptitude		GPA	
	M	SD	M	SD	M	SD	M	SD	M	SD
First Sixth[1]										
Iowa (1958)	55.90	10.55	56.93	10.36	48.62	8.83	11.65	6.61	1.63	0.53
Iowa (1959)	58.27	13.10	60.36	10.65	49.57	9.61	15.11	7.70	1.58	0.62
Wisconsin	59.27	11.16	60.31	10.51	50.33	8.93	99.32	13.26	1.40	0.84
Minnesota	55.86	10.58	56.49	10.34	48.67	8.54	26.75	2.98	1.67	0.68
Second Sixth[1]										
Iowa (1958)	56.97	12.43	57.84	11.48	48.59	10.08	32.62	5.61	1.83	0.51
Iowa (1959)	55.31	8.58	58.02	10.22	47.51	7.86	35.87	5.09	1.85	0.55
Wisconsin	57.94	11.16	57.53	10.51	51.24	8.92	121.59	4.34	1.60	0.84
Minnesota	55.09	10.43	54.54	9.75	46.68	8.39	33.25	1.60	1.79	0.72
Third Sixth[1]										
Iowa (1958)	55.94	9.55	57.34	10.01	48.85	8.94	50.76	4.72	2.11	0.55
Iowa (1959)	56.89	9.25	57.86	10.66	49.23	9.02	51.59	4.49	1.94	0.54
Wisconsin	57.19	10.01	57.86	10.43	50.26	9.23	135.28	3.46	1.97	0.78
Minnesota	59.24	12.02	57.55	10.14	48.53	9.86	38.48	1.59	1.80	0.67
Fourth Sixth[1]										
Iowa (1958)	57.89	8.86	57.98	10.43	49.28	9.82	65.93	4.54	2.19	0.52
Iowa (1959)	57.51	10.49	56.21	10.46	50.39	9.89	65.49	3.67	2.12	0.61
Wisconsin	57.64	6.52	57.21	6.76	50.95	8.15	146.43	3.22	2.19	0.81
Minnesota	56.95	12.04	57.24	10.42	47.39	8.39	43.39	1.68	1.89	0.74
Fifth Sixth[1]										
Iowa (1958)	57.29	9.71	56.81	10.53	48.52	9.48	80.35	3.53	2.40	0.57
Iowa (1959)	55.80	9.00	56.52	10.86	58.40	8.71	79.02	4.45	2.27	0.57
Wisconsin	58.20	9.30	57.42	9.88	50.82	10.17	158.72	4.12	2.43	0.77
Minnesota	58.52	10.61	56.85	11.44	49.95	9.85	50.21	2.48	1.95	0.69
Sixth Sixth[1]										
Iowa (1958)	56.71	9.90	56.23	10.98	48.05	9.24	93.96	3.72	2.76	0.62
Iowa (1959)	56.94	10.27	55.87	11.19	51.23	10.66	93.84	3.77	2.68	0.61
Wisconsin	56.48	8.96	55.18	9.35	51.23	9.54	176.65	7.47	2.81	0.81
Minnesota	58.21	10.25	57.36	10.71	48.06	8.58	61.42	4.66	2.58	0.77
Total[1]										
Iowa (1958)	56.78	10.25	57.12	10.86	48.65	9.41	55.71	28.11	2.15	0.66
Iowa (1959)	56.79	10.27	57.47	10.78	49.39	9.41	56.90	26.74	2.07	0.68
Wisconsin	57.79	10.07	57.58	10.19	50.81	9.51	139.70	25.95	2.07	0.94
Minnesota	57.31	11.13	56.68	10.53	48.21	9.02	42.26	11.71	1.94	0.77

[1] Iowa (1958) N= 119 for Each Sixth, Total Male N = 714
Iowa (1959) N= 133 for Each Sixth, Total Male N = 796
Wisconsin N= 282 for Each Sixth, Total Male N =1693
Minnesota N= 131 for Each Sixth, Total Male N = 783

Table 2

Means and SDs for the MMPI, Aptitude Measure and First Year GPA

for Each Sixth and Each of the Total Female Samples

Sample	L		F		K		Hs		D	
	M	SD	M	SD	M	SD	M	SD	M	SD
First Sixth[1]										
Iowa (1958)	3.72	2.08	3.65	2.50	15.29	4.34	49 78	7.93	49.35	8.40
Iowa (1959)	3.66	1.86	3.97	2.81	15.12	3.85	50.24	6.75	50.08	8.63
Wisconsin	2.34	2.34	4.20	2.00	15.24	4.13	51.00	6.31	51.24	8.77
Minnesota	4.30	4.89	4.10	3.98	14.54	5.97	49.39	7.29	51.07	8.31
Second Sixth[1]										
Iowa (1958)	3.66	1.88	3.19	2.41	15.96	4.42	48.86	7.42	47.84	7.00
Iowa (1959)	3.63	2.04	3.13	1.90	16.02	4.63	49.25	6.33	50.36	8.82
Wisconsin	3.91	2.10	3.85	2.50	15.57	4.32	50.22	6.89	50.49	8.96
Minnesota	3.78	2.13	3.68	3.10	15 95	4.39	49.24	5.96	48.89	7.82
Third Sixth[1]										
Iowa (1958)	3.50	1.95	3 34	2.34	15.76	3.96	50 87	6.47	50.72	9.15
Iowa (1959)	3.70	1.91	2.85	2.07	16.83	4.30	50.68	6.06	49.93	7.58
Wisconsin	3.84	1.92	3.46	2 30	15.70	4.03	51.76	7.54	52.01	9.37
Minnesota	3.25	2.28	3.42	2.99	15.88	4.46	48.70	5.95	47.68	7.68
Fourth Sixth[1]										
Iowa (1958)	3.63	1.80	3.08	2.63	16.61	4.23	50.44	7.39	49.63	8.45
Iowa (1959)	3.34	2.16	3.31	2.71	15.65	4.82	49.69	7.41	49.92	7.91
Wisconsin	3.96	2.16	3.59	2.49	16.09	4.28	50.22	6.57	50.09	8.48
Minnesota	3.75	2.06	3.88	3.09	15.84	4.26	49.79	6.75	47.88	9.27
Fifth Sixth[1]										
Iowa (1958)	3.73	2.13	2.52	2.00	17.11	4.36	50.29	5.33	47.68	7.27
Iowa (1959)	3.47	2.13	2.64	2.12	16.77	4.35	50.09	6.32	48.68	9.07
Wisconsin	3.61	1.88	3.47	2.68	16.05	4 05	50.71	7.23	51.75	9.97
Minnesota	3.34	2.06	3.50	2.67	14.61	4.75	49.15	6.15	49.14	7.92
Sixth Sixth[1]										
Iowa (1958)	3.46	1.87	2.40	1.74	17.64	3.89	49.85	5.42	47.26	7.51
Iowa (1959)	3.24	1.78	3.02	2.13	16.81	4.53	49.55	6.30	50.15	8.39
Wisconsin	3.65	2.01	3.38	2.60	15.70	4.41	51.80	6.55	52.90	8.78
Minnesota	3.07	1.98	3.71	3.11	15 73	4.51	49.91	6.85	49.57	8.09
Total[1]										
Iowa (1958)	3.62	1.96	3.03	2.33	16.40	4.28	50.02	6.76	48.75	8.09
Iowa (1959)	3.50	1.99	3.16	2.36	16.20	4.48	49.91	6.55	49.85	8.44
Wisconsin	3.73	2.21	3.66	2.58	15.75	4.21	50.95	6.89	51.41	9.11
Minnesota	3.58	2.82	3.72	3.19	15.42	4.80	47.60	11.21	47.30	12.25

[1] Iowa (1958) N = 111 for each Sixth, Total Female N = 666
Iowa (1959) N = 131 for each Sixth, Total Female N = 786
Wisconsin N = 228 for each Sixth, Total Female N =1364
Minnesota N = 116 for each Sixth, Total Female N = 698

Table 2 (Continued)

Means and SDs for the MMPI, Aptitude Measure and First Year GPA

for Each Sixth and Each of the Total Female Samples

Sample	Hy		Pd		Mf		Pa		Pt	
	M	SD	M	SD	M	SD	M	SD	M	SD
First Sixth[1]										
Iowa (1958)	54.50	8.26	54.84	9.51	51.50	9.89	53.13	8 63	55.69	8.62
Iowa (1959)	54.85	6.59	56.09	8.02	50.09	9.20	53.19	8.30	55.92	8.69
Wisconsin	56.33	7.62	56.56	9.14	46.67	8.16	55.56	8.01	55.95	8.29
Minnesota	53.87	8.20	54.91	9.42	52.97	8.93	52.90	8.59	54.63	9.03
Second Sixth[1]										
Iowa (1958)	54.04	7.69	55.36	7.62	50.39	7.95	52.87	7.43	53.21	8.57
Iowa (1959)	54.69	6.09	55.68	8.93	49.14	8.33	55.99	7.87	56.98	8.59
Wisconsin	55.62	8.17	55.60	10.05	45.29	8.93	55.60	8.92	55.19	9.33
Minnesota	53.90	7.44	57.56	10.62	51.43	8.56	54 20	8.94	52.93	8.04
Third Sixth[1]										
Iowa (1958)	55.19	6.83	56.70	9.25	45.23	9.40	55.82	7.98	50.10	8.73
Iowa (1959)	54.62	6.71	56.14	7.96	49.06	8.31	53.57	7.28	55.50	7.04
Wisconsin	56.83	8.19	57.14	9.38	47.69	9.39	56.66	8.06	57.00	8.30
Minnesota	53.60	6.47	55.30	8.94	50.78	8.84	53.91	7.22	53.46	7.51
Fourth Sixth[1]										
Iowa (1958)	55.59	7.59	56.43	8.94	46.33	7.98	55.00	8.68	54.91	8.11
Iowa (1959)	54.10	6.40	55.10	8.76	47.51	8.14	55.09	9.06	55.77	8.81
Wisconsin	55.78	6.44	56.56	8.19	46.50	8.13	54.77	8.05	54.93	7.34
Minnesota	54.25	7.40	56.15	9.54	50.30	9.32	52.69	9.78	53.25	8.80
Fifth Sixth[1]										
Iowa (1958)	54.92	6.40	55.59	8.18	47.01	9.41	55.34	8.16	55.00	6.99
Iowa (1959)	55.08	6.75	54.98	8.41	45.92	8.10	54.07	7.03	54.65	7.56
Wisconsin	55.83	7.71	57.95	9.73	48.74	8.07	55 33	8.85	56.59	9.04
Minnesota	53.81	6.50	55.34	9.27	48.84	8.72	54.36	9.31	53.26	8.70
Sixth Sixth[1]										
Iowa (1958)	55.09	6.36	54.61	8.35	46.30	9.06	55 16	7 05	54.10	7.02
Iowa (1959)	54.90	7.29	55.88	8.88	43.90	8.38	58.12	7.60	55.63	8.09
Wisconsin	56.12	7.55	58.18	8.86	50.07	8.53	54.40	9.00	57.58	8.94
Minnesota	55.22	7.29	55.95	9.07	48.25	9.44	56.78	9.20	54.75	8.93
Total[1]										
Iowa (1958)	54.89	7.24	55.59	8.70	47.79	9.27	54.55	8.09	55.00	8.13
Iowa (1959)	54.70	6.66	55.66	8.53	47.63	8.70	55.01	8.06	55.76	8.20
Wisconsin	56.09	7.64	57.00	9.28	47 49	8.69	55 39	8.52	56.20	8.61
Minnesota	52.19	12.36	53.88	14.01	48.61	12.97	52.21	13.40	51.79	13.06

[1]Iowa (1958) N = 111 for each Sixth, Total Female N = 666
Iowa (1959) N = 131 for each Sixth, Total Female N = 786
Wisconsin N = 228 for each Sixth, Total Female N =1364
Minnesota N = 116 for each Sixth, Total Female N = 698

Table 2 (continued)

Means and SDs for the MMPI, Aptitude Measure, and First Year GPA for each Sixth and each of the Total Female Samples

Sample	Sc		Ma		Si		Apt		GPA	
	M	SD	M	SD	M	SD	M	SD	M	SD
First Sixth[1]										
Iowa (1958)	55.31	8.37	57.27	9.71	49.23	7.79	14.87	7.59	3.08	0.52
Iowa (1959)	55.73	8.36	58.92	10.31	49.06	8.20	14.78	7.93	2.96	0.53
Wisconsin	56.26	7.99	55.42	11.15	50.62	9.26	90.35	11.40	1.50	0.82
Minnesota	55.06	8.58	55.83	10.98	51.49	9.44	26.09	6.00	2.80	0.72
Second Sixth[1]										
Iowa (1958)	53.39	8.03	55.67	9.82	47.29	7.59	35.50	5.12	2.69	0.57
Iowa (1959)	54.98	7.76	56.59	9.72	50.27	9.59	36.79	5.38	2.69	0.49
Wisconsin	55.62	8.92	56.41	9.93	51.40	10.18	110.80	3.90	2.01	0.71
Minnesota	54.93	8.16	54.00	10.41	48.82	9.33	35.12	1.88	2.42	0.63
Third Sixth[1]										
Iowa (1958)	55.35	8.01	57.26	10.03	51.23	9.31	53.03	5.03	2.37	0.55
Iowa (1959)	55.08	7.30	54.54	9.04	50.09	8.48	54.06	4.73	2.40	0.58
Wisconsin	56.46	8.23	57.05	10.16	50.58	9.40	123.10	3.30	2.11	0.69
Minnesota	54.94	8.54	55.96	10.73	48.51	9.12	41.57	1.84	2.21	0.65
Fourth Sixth[1]										
Iowa (1958)	54.77	8.65	54.67	10.51	50.29	9.44	68.30	4.32	2.21	0.52
Iowa (1959)	54.79	8.59	55.37	10.04	50.93	9.64	69.98	3.97	2.26	0.46
Wisconsin	54.61	7.36	57.02	9.75	49.06	9.16	134.10	3.18	2.35	0.71
Minnesota	55.61	8.69	57.44	10.13	48.76	8.61	47.74	1.85	2.12	0.70
Fifth Sixth[1]										
Iowa (1958)	54.40	6.34	55.32	10.28	49.10	8.60	81.81	4.21	2.09	0.51
Iowa (1959)	53.92	6.47	54.73	9.78	50.03	11.00	81.36	3.09	1.91	0.53
Wisconsin	56.06	8.44	58.04	10.80	50.62	10.10	146.00	3.83	2.92	0.81
Minnesota	54.67	7.93	55.31	11.11	50.32	9.49	54.57	2.09	1.94	0.62
Sixth Sixth[1]										
Iowa (1958)	53.91	6.98	54.04	9.24	48.83	9.21	94.31	3.16	1.75	0.49
Iowa (1959)	55.22	7.94	54.09	9.95	51.16	9.30	93.33	3.72	1.65	0.53
Wisconsin	56.78	8.24	58.57	10.24	50.13	8.62	165.50	9.68	2.57	0.71
Minnesota	56.62	8.86	55.14	8.89	49.90	6.59	64.36	3.62	1.79	0.96
Total[1]										
Iowa (1958)	54.52	7.81	55.70	10.01	49.33	8.77	57.97	27.52	2.36	0.68
Iowa (1959)	54.97	7.80	55.72	9.95	50.25	9.25	58.45	27.14	2.31	0.68
Wisconsin	55.97	8.23	57.08	10.39	50.40	9.49	128.14	25.49	2.24	0.87
Minnesota	53.33	13.26	53.61	14.79	47.87	12.94	43.70	15.00	2.13	0.88

[1]

Iowa (1958) N = 111 for each Sixth, Total Females N = 666
Iowa (1959) N = 131 for each Sixth, Total Females N = 786
Wisconsin N = 228 for each Sixth, Total Females N = 1364
Minnesota N = 116 for each Sixth, Total Females N = 698

Table 3

Beta Weights of MMPI Scales in Predicting First Year Grades for Male Samples Divided into Sixths on the Aptitude Measure and for the Totals

Sample	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
First Sixth													
Iowa(1958)	-085	-181	075	082	039	007	-018	185	174	005	-004	-020	150
Iowa(1959)	-055	-103	-085	002	195	036	033	090	031	-094	-042	154	-093
Wisconsin	-141	-064	077	-115	-014	091	-020	182	-084	018	-004	-084	-077
Minnesota	-065	-098	000	-217	-195	287	008	231	-187	052	145	-149	119
Second Sixth													
Iowa(1958)	054	211	037	-005	-005	137	144	019	-101	173	-317	-203	059
Iowa(1959)	-081	214	128	-193	-124	225	-136	017	-030	149	-173	-037	115
Wisconsin	-089	-100	-013	077	039	064	-165	086	058	015	-013	011	-117
Minnesota	005	-023	-149	127	086	-123	310	256	186	-108	-311	-100	-047
Third Sixth													
Iowa(1958)	085	151	-120	139	-205	102	-004	163	-147	253	-069	-146	-005
Iowa(1959)	114	-138	000	-014	-077	-098	-017	170	087	037	034	-016	-001
Wisconsin	-026	-170	047	023	-054	048	-221	149	-031	058	-043	107	079
Minnesota	050	-121	136	-035	094	-103	-036	124	160	136	-324	212	040
Fourth Sixth													
Iowa(1958)	-042	-049	072	-161	040	307	-190	150	-014	-303	136	100	189
Iowa(1959)	-140	084	043	-163	-092	024	-061	199	105	-108	138	-154	049
Wisconsin	054	004	028	138	-089	-126	-064	172	210	138	-173	-078	-050
Minnesota	045	-008	279	079	066	-007	-284	174	-052	134	-405	135	269
Fifth Sixth													
Iowa(1958)	044	-017	215	-043	032	-167	-012	104	070	-051	-012	017	133
Iowa(1959)	119	-157	126	043	054	-153	-052	276	079	-247	079	057	061
Wisconsin	-140	067	187	071	-232	-027	-043	179	117	009	-212	-164	180
Minnesota	108	219	039	004	097	-105	028	083	186	230	-377	-016	-148
Sixth Sixth													
Iowa(1958)	059	004	057	-080	-218	099	-116	195	039	007	064	-213	104
Iowa(1959)	-107	-003	125	040	-112	048	-044	054	-059	068	-084	-165	105
Wisconsin	-141	049	148	111	-104	-012	-225	219	046	094	-199	-071	054
Minnesota	-125	-016	015	125	195	-039	-124	042	110	-109	006	-192	020
Total													
Iowa(1958)	037	025	058	-004	-033	030	-013	131	008	-010	-026	-073	063
Iowa(1959)	-031	-012	061	-037	012	013	-062	102	056	-030	-021	004	045
Wisconsin	-067	-030	053	043	-05	009	-102	161	033	037	-078	-043	-006
Minnesota	-091	006	193	-050	-0	002	117	198	048	-183	051	090	119

Note: Decimal points omitted

Table 4

Beta Weights of MMPI Scales in Predicting First Year Grades for Female Samples Divided into Sixths on the Aptitude Measure and for the Totals

	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
First Sixth													
Iowa(1958)	-248	102	257	-356	-051	286	-077	-060	070	-106	-136	178	095
Iowa(1959)	-053	-058	261	140	-016	-062	045	-156	140	-082	-267	097	154
Wisconsin	-094	020	056	-134	082	175	-204	-051	037	005	-248	-009	201
Minnesota	-124	-201	056	068	086	-053	-071	-133	-256	-255	276	-100	036
Second Sixth													
Iowa(1958)	014	170	104	349	357	226	089	062	073	-017	-204	134	059
Iowa(1959)	-065	089	017	-059	-099	011	007	266	074	010	-044	-091	054
Wisconsin	-088	013	022	-139	047	179	-017	-044	-037	136	-073	-147	-048
Minnesota	072	-139	131	-127	208	032	-351	-044	224	-033	042	074	137
Third Sixth													
Iowa(1958)	-080	-045	-168	-002	035	-091	106	-126	076	-285	154	-135	-017
Iowa(1959)	050	-009	301	040	232	044	-191	-036	095	138	-350	158	129
Wisconsin	001	-004	-116	120	-066	-102	116	-039	039	044	-214	-082	-022
Minnesota	079	-248	179	022	025	085	-260	062	058	040	-007	213	125
Fourth Sixth													
Iowa(1958)	-209	014	507	054	077	-001	-440	-074	190	-118	-110	191	107
Iowa(1959)	-292	179	301	-013	009	122	-091	-071	-047	011	-134	-209	201
Wisconsin	-049	-060	095	-012	183	000	-147	-038	118	-222	098	092	151
Minnesota	021	072	101	-022	037	026	-137	-062	163	057	-262	-066	106
Fifth Sixth													
Iowa(1958)	104	-046	115	084	-727	-067	187	-132	157	071	-289	-090	-030
Iowa(1959)	-022	064	133	-077	-004	027	-068	033	043	031	118	-219	-081
Wisconsin	-032	-084	027	-181	-172	125	151	-026	086	140	020	-233	-025
Minnesota	-176	168	339	-147	236	-069	-132	-037	-139	055	-060	-136	076
Sixth Sixth													
Iowa(1958)	-140	077	-037	125	029	049	-209	-174	-041	-122	161	-009	-004
Iowa(1959)	-017	084	153	-142	110	041	-166	172	142	-091	030	071	052
Wisconsin	-055	054	043	012	153	054	-168	-058	017	-020	-123	064	-100
Minnesota	-162	-042	-095	154	262	-029	-048	-041	016	-336	057	-228	022
Total													
Iowa(1958)	-050	018	083	-090	072	060	-068	-052	026	-063	-041	025	-006
Iowa(1959)	-092	054	141	-005	020	029	-053	028	041	009	-077	-043	069
Wisconsin	-029	-027	085	-054	020	062	-040	-028	036	036	-077	-043	-004
Minnesota	-094	146	193	003	-154	098	052	-109	157	-067	-015	095	140

Note: Decimal Points Omitted

Table 5

A Comparison of Zero-Order Correlations between Aptitude and First Year GPA with Multiple Correlations between MMPI and Grades

Sample	Males		Females	
	R	r	R	r
First Sixth				
Iowa(1958)	35	20	35	39
Iowa(1959)	27	-08	36	17
Wisconsin	33	08	39	24
Minnesota	40	01	38	07
Second Sixth				
Iowa(1958)	41	20	37	03
Iowa(1959)	30	08	30	13
Wisconsin	24	17	25	04
Minnesota	42	-01	39	14
Third Sixth				
Iowa(1958)	32	01	29	12
Iowa(1959)	27	12	41	26
Wisconsin	32	12	22	14
Minnesota	33	-02	40	-02
Fourth Sixth				
Iowa(1958)	35	04	44	06
Iowa(1959)	34	-08	44	06
Wisconsin	33	06	27	08
Minnesota	44	13	31	08
Fifth Sixth				
Iowa(1958)	26	14	35	35
Iowa(1959)	37	19	28	16
Wisconsin	34	12	30	06
Minnesota	32	05	43	19
Sixth Sixth				
Iowa(1958)	34	33	28	34
Iowa(1959)	27	46	24	23
Wisconsin	37	36	22	26
Minnesota	35	15	40	18
Total				
Iowa(1958)	58	55**	64	63
Iowa(1959)	52	50	67	65**
Wisconsin	56	52**	56	53**
Minnesota	46	37**	68	57**

Note: Italics indicate .05 level of significance
Boldface indicate .01 level of significance

[1] The Rs for the totals include aptitude. Significance of the difference between R and r at the .01 level is indicated by **.

Betas for the Pd scale and four significant positive Betas for the K scale, but there are no patterns in either the level or institutional samples.

The Rs for the eight total samples are presented in Table 5, and all are highly significant. It should be noted that these Rs include the aptitude measure as a 14th predictor (in addition to the 13 MMPI variables). The Betas for the aptitude measures in the total male samples were .522, .458, .466, and .337, respectively, while those for the female samples were .610, .624, .510, and .412, respectively. These Betas were significant at less than the .01 level. The Betas for the MMPI variables in the total groups are presented in Table 3 for the males and in Table 4 for the females. For the males the Mf scale yielded consistently positive and significant Betas for the four total male samples, while L and Pd each yielded two negative and significant Betas. For the females K yielded two positive and significant Betas, while Sc yielded two negative and significant Betas.

In as far as institutional differences are concerned, both for the within levels analyses and for the total group analyses, the MMPI variables tend to be better predictors of GPA in the Minnesota sample than in the other three samples. For example, in the total Minnesota sample seven of the 13 MMPI variables have significant Betas in both the male and female samples, although the same scales are not involved. The Wisconsin female total sample has five significant Betas in the MMPI, and all the others have still fewer significant Betas.

Also presented in Table 5 is a comparison of the zero-order correlations between the aptitude measures and GPA, on the one hand, and the multiple correlations between the MMPI measures and GPA, on the other, within the sixths and for the totals. For the within-sixths comparison, it can be noted that the Rs are considerably larger than r in all sixths,

except for the lowest one. Especially in the third, fourth, and fifth sixths the discrepancy is substantial. Thus, it would appear that within levels, particularly in the middle ranges of aptitude, the personality variable contributes more to college achievement than does aptitude. In other words, grades seem to be dependent more upon the personality of the average ability student than upon his level of ability. Although the differences between these R̲s and the corresponding r̲s appear statistically reliable, no adequate statistical test of these observed differences is known to the authors. Consequently, the interpretation of these differences must be regarded as tentative.

The level of significance of the differences between R̲ and r̲ for the total groups was determined following McNemar (1962, p. 284) and is also reported in Table 5. The R̲s based upon the MMPI and aptitude variables are consistently larger than the r̲s for the aptitude variable alone, and these differences, although quite small, were statistically significant for six of the eight groups indicating that the MMPI variable significantly increased the predictability of GPA.

Configural Analysis[2]

For each of the Iowa samples the Type I analyses described above were performed in each sixth, separately by sex. Of these 24 analyses, only one of the obtained F̲s (the first sixth of the 1959 males) for differences among groups (high, average, and low achievers) was significant, and only two of the F̲s for the groups-by-scales interactions were statistically significant (the fourth sixth of the 1959 males and third sixth of the 1959 females). (While all the F̲s for columns were highly significant, these simply indicated that the means on the several MMPI scales were not identical within

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[2]To conserve space the summary tables for these analyses have not been reproduced but are available from the authors.

levels.) Thus, there were no identifiable differences among these three achievement subgroups in either MMPI profile elevation or shape. The failure to find significant profile patterns within the two Iowa samples made it seem unnecessary to repeat these analyses with the Wisconsin and Minnesota data.

Discussion

The results of the present study are equivocal and difficult to interpret. While personality factors do appear to make a significant contribution to the prediction of academic performance in college beyond that attributable to aptitude, both within the several levels of aptitude used in this study and over the entire range of aptitude scores, no consistent pattern of personality factors is clearly associated with academic success. Thus, while the multiple correlations between the personality factors and grades are consistently larger than the zero-order correlations between the aptitude measures and grades, the Beta weights of the personality variables do not clearly identify any pattern of personality factors responsible for these differences.

The hypothesis that a general adjustment factor is responsible for the obtained results does not seem tenable, since the Beta weights for the personality variables were not consistently negative. Since higher MMPI scores are generally indicative of maladjustment, negative Betas should be the case if maladjustment were associated with poor grades. In the present study, however, 13 of the 25 significant within-sixths Betas for the males were positive as were seven of the 24 significant Betas for the females.

The configural analyses indicated further that there were no differences in the modes of adjustment associated with differential achievement within levels. While an inspection of the between-levels patterns suggests that

there are differences in personality patterns among the several levels of aptitude, there is virtually no evidence that within levels there are any identifiable patterns either in level or modes of adjustment that are related to achievement.

The results of the within-levels analyses suggest that the levels of aptitude actually used in the present study were sufficiently restricted in range, so that the predictive variance associated with aptitude within levels was relatively negligible. The sixths with the lowest aptitude scores were the principal exceptions to this generalization. In these low ability groups the zero-order correlations between aptitude and grades were either equal to or larger than the multiple correlations between the personality variables and grades, indicating that aptitude was a correlate of academic success. For the remaining sixths, especially in the middle sixths, the personality factors were better predictors of grades than were the aptitude measures.

These results are similar in general outline to those previously reported by Goodstein and Heilbrun (in press) who found personality variables, as measured by the Edwards Personal Preference Schedule (EPPS), to be better predictors of academic achievement for males in the middle levels of aptitude. But, in the present study, even in these middle levels of aptitude, there are no clearly evident patterns of personality generally related to achievement. It would appear, then, that the personality factors measured by the MMPI which are associated with achievement are idiosyncratic to the particular level of aptitude and/or to the particular institution.

It may be argued that the MMPI, a personality test specifically designed to measure psychopathology, is an inappropriate one to use for assessing the personality factors associated with collegiate achievement. Other personality tests, such as the EPPS or the California Psychological Inventory (CPI),

designed to measure personality factors in psychologically healthy populations, may be more appropriate measures for such purposes. The recent study by Holland (1959) who found several significant personality correlates of academic achievement in a very high ability group of college students, using the CPI as the personality test, as well as the results of Goodstein and Heilbrun (in press) with the EPPS, both tend to support this contention. It is also possible that other types of instruments, such as study habits inventories, may prove to be useful in further understanding the unexplained variance in college achievement. The present research design, including the within-levels and configural analyses, seems to be a useful one to pursue with other types of non-intellective instruments.

For the males the significant positive findings with the Mf scale are noteworthy. The results indicate that those males who are the most feminine in their interests tend to achieve better grades, at all levels of aptitude. All of the Beta weights for the Mf scale are positive and eight of the 24 Betas obtained in the within-levels analyses, as well as all four of the Betas for the total male samples, were statistically reliable. Although college males have been shown to be generally more feminine than men in general (Goodstein, 1954), such femininity is positively associated with college success, at least in so far as measured by grades. It may be argued that a feminine, passive acceptance of predominant collegiate values does lead to better academic performance than a hostile, rebellious acting-out.

These findings with the Mf scale are consistent with those previously reported by Drake and Oetting (1957) and with those more recently obtained by Drake (1962). These investigators interpret their findings to indicate that Mf operates as a suppressor variable, reducing the interfering effects

of other pathological scales (especially Pd and Ma in combination with each other). It is interesting to note that these results with the Mf scale are most striking in the Wisconsin sample, where Drake and Oetting have also secured their subjects. The possibility that such effects are specific to certain institutions or types of institutions is a subject for additional research.

For the female subjects the results with the Pd and K scales are merely suggestive, especially without any independent supporting data. For Pd five of the within-levels Betas and two of the Betas for the totals were statistically reliable, while for K four of the within-levels and two of the total sample Betas reached statistical reliability. The carelessness, the happy-go-lucky attitudes, and impulsiveness that are characteristic of the high Pd scores would seem to interfere with successful college achievement, at least in the case of females. While this may also be true of males, it was suggested above that Mf operates as a suppressor variable for the males, but apparently not for the females. If higher K scale scores are seen as reflecting better psychological adjustment in college women rather than defensiveness (Heilbrun, 1961), then the present results can be seen as indicating a slight tendency for the better adjusted women to earn better grades.

One of the institutional differences seems noteworthy. The Beta weights for the aptitude measure at the University of Minnesota are substantially smaller, for both the males and females, than they are at either of the other two institutions. At the same time, the Betas for the personality variables in the total groups are more consistently related to achievement for the Minnesota sample than for the others, with seven of the 13 MMPI scales yielding significant Betas in both the male and female samples. It would appear, then, that academic achievement at the University of Minnesota

is determined more by personality factors than it is at the other institutions. Perhaps the fact that the University of Minnesota is the only one of the three universities located within a metropolitan area with many students commuting from home accounts for the idiosyncratic nature of achievement there. Since these students are still more involved in the home situation and less under direct university influence, personality variables may be more important in determining success.

It is worth noting that, under such circumstances, the relationship between grades and personality becomes a circular one. As grades are determined by personality, academic success reinforces those same personality characteristics which resulted in such success. Additional research clarifying such institutional differences and the nature of the academic evaluative process seems worthwhile.

Summary

In this study, an attempt was made to identify some of the nonintellective variance in college achievement which exists in addition to that already established by means of usual statistical methods. Within-levels of ability and configural analyses of personality variables in relation to grade-point-average were made of data from samples of college students which numbered approximately 7,500 Ss at three different universities. The MMPI was used to measure both general level of adjustment and modes of adjustment, as possible personality factors which might be related to college achievement, and various paper-and-pencil aptitude tests were used to assess scholastic aptitude. Overall grade-point-average, based upon a weighting of the number of hours of grades A through F in all courses, was the criterion of academic success. The design of the study was to relate personality to grades within different levels of ability to

determine whether the relationships varied from one level to another.

The results of both the within-levels and configural analyses indicated that personality contributes to college achievement but in a general rather than specific way. In other words, there were no identifiable patterns of personality characteristics which seemed to be consistently related to success in college, other than a tendency for more intellectually-oriented males to obtain higher grades. There was some indication, however, that personality is more closely associated with achievement in the middle ranges of ability than is ability. The MMPI predicts grades uniformly over the entire range of ability, whereas aptitude measures predict better at the extremes of the continuum, particularly at the lower levels.

The findings were not clear-cut, but they did suggest that further research on nonintellective factors in college achievement might be profitable. Particularly intriguing as a hypothesis for further study is the possible relationship between personality and grades in the middle range of scholastic aptitude. Also, it would be interesting to pursue the finding that different institutions place varying emphases upon the importance of personality in college achievement. To test these implications of the present study another investigation might be concerned with what the grade-related behaviors and orientations of average ability students are at universities which represent disparate educational philosophies and intellectual climates of opinion.

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Appendix I

The 15 by 15 intercorrelational matrices (13 MMPI scores, the aptitude scores, and GPA) for each of the sixths and for each of the totals.

Table A

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for First Sixth of 1958 Iowa Males

(N = 119)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																-07	3.84	2.15
F	-11															01	4.09	2.83
K	45	-45														-07	14.42	4.43
1	11	15	43													13	51.30	7.29
2	05	32	-07	32												20	53.38	10.36
3	12	-04	36	52	25											-12	56.83	6.05
4	01	30	33	40	19	28										09	58.05	9.33
5	-21	27	-18	12	36	26	08									21	57.31	9.83
6	01	34	02	18	15	22	24	24								19	53.63	8.40
7	-22	33	-20	40	62	23	30	42	31							18	57.92	9.52
8	-15	63	-07	50	43	17	32	38	30	70						11	55.90	10.55
9	-20	38	-16	00	10	-08	22	08	00	18	33					-06	56.93	10.36
0	-01	47	-47	-07	49	-14	-04	26	04	46	30	-14				14	48.62	7.83
Sem GPA	11	-06	00	06	03	09	-03	23	12	14	04	03	06			---	1.62	.57
Yr GPA	-07	00	-04	13	17	14	05	25	18	16	11	-08	12	86		---	1.63	.53
Aptitude	-03	-07	13	01	-11	14	-19	24	-02	-08	03	-11	-07	18	20	---	11.65	6.61

Note: Decimal points omitted

.05 level = .20

.01 level = .25

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Supplementary Tables

Table B

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Second Sixth of 1938 Iowa Males

(N = 119)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																17	3.45	1.85
F	-30															10	4.37	3.84
K	37	-44														03	15.24	4.75
1	05	22	30													10	51.82	8.40
2	08	23	-05	37												18	52.98	9.32
3	07	-03	36	60	21											19	56.37	7.76
4	-08	23	27	49	19	39										05	56.39	9.17
5	-16	31	-33	11	29	20	12									07	57.36	9.69
6	-14	41	00	33	36	25	37	33								03	53.66	8.62
7	-22	46	-08	37	37	24	41	32	46							08	58.72	11.03
8	-23	27	01	34	23	14	47	13	31	62						-17	56.97	12.43
9	-44	48	-27	11	-15	00	37	16	20	27	37					-20	57.84	11.48
0	-19	41	-35	-22	36	-26	-15	23	13	33	-13	-03				08	48.39	10.08
Sem GPA	10	05	06	05	15	10	00	04	01	07	-12	-15	09			---	1.85	.57
Yr GPA	14	08	06	10	14	17	04	07	01	06	-19	-18	06	89		---	1.83	.51
Composite	-14	-10	14	02	-15	-05	-02	-01	-11	-08	-11	05	-11	17	20	---	32.62	5.61

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table C

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Third Sixth of 1958 Iowa Males

(N = 119)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																00	3.31	2.03
F	-20															10	3.87	2.68
K	47	-26														-05	15.11	4.41
1	08	01	46													14	51.26	6.94
2	00	21	-12	17												06	52.54	10.24
3	19	-08	45	68	19											14	56.04	7.03
4	07	25	30	38	20	42										04	57.61	10.50
5	-20	17	-22	14	37	28	14									20	59.32	9.98
6	-05	17	08	27	21	29	39	26								01	53.64	8.96
7	-20	25	-09	29	59	24	41	36	49							15	57.29	10.70
8	-03	44	15	47	36	39	58	34	49	68						12	55.94	9.55
9	-25	33	-10	09	-21	05	35	00	04	09	29					-04	57.34	10.01
0	-05	28	-45	-15	52	-16	-08	28	12	44	30	-21				09	48.85	8.94
Sem GPA	-04	07	-07	15	00	15	02	14	-01	05	06	-07	02			---	2.08	.62
YR GPA	-01	10	-05	11	06	14	04	20	01	15	12	-04	09	91		---	2.11	.55
Aptitude	-23	-05	01	03	-13	-05	-13	07	00	-07	00	-08	-09	05	01	---	50.76	4.72

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table D

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Fourth Sixth of 1958 Iowa Males

(N = 119)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																06	3.03	2.00
F	-19															01	4.04	3.17
K	47	-56														-03	15.25	4.65
1	13	12	24													01	52.34	8.37
2	01	38	-27	35												-08	53.30	10.35
3	29	03	27	71	31											12	51.88	6.94
4	-01	15	11	37	21	44										-12	58.45	8.96
5	04	30	-26	32	29	47	27									14	58.78	9.74
6	-06	25	-09	28	13	33	46	45								-01	54.64	8.26
7	-13	34	-20	36	58	39	41	42	41							-11	59.08	10.49
8	-04	54	-13	49	44	43	46	45	49	63						03	57.89	8.88
9	-03	24	-11	13	-18	06	32	06	16	04	32					02	57.98	10.43
0	-24	41	-63	-13	47	-12	-09	23	14	43	23	-19				05	49.28	9.82
Sem GPA	00	04	-07	00	-03	06	-11	12	00	-06	03	03	08			---	2.20	.53
Yr GPA	06	01	-03	00	-01	12	-11	14	00	-10	03	02	05	90		---	2.19	.52
Aptitude	-07	-01	-04	-13	16	-04	14	02	15	17	10	-11	14	05	04	---	65.93	4.54

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table E

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Fifth Sixth of 1958 Iowa Males (N = 119)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																13	2.87	1.93
F	-10															-08	3.50	2.39
K	47	-41														14	15.66	4.23
1	08	25	20													-07	52.78	8.13
2	20	25	-05	38												04	50.79	9.21
3	14	09	22	73	37											-09	57.67	7.33
4	-02	08	24	2[illegible]	00	27										-02	57.30	7.85
5	-06	19	-14	37	30	42	03									04	60.77	9.86
6	-15	18	05	18	11	24	41	32								04	55.08	7.96
7	-19	29	-06	44	41	39	34	40	53							-04	58.41	9.64
8	-04	41	09	51	19	37	41	26	49	66						-03	57.29	9.71
9	-23	34	-31	02	-25	-05	18	10	10	16	28					-10	56.81	10.53
0	-07	31	-43	08	51	-02	-15	19	04	25	08	-28				06	48.52	9.48
Sem GPA	10	-02	07	-05	04	-06	-06	05	03	-06	-02	-08	08			---	2.42	.57
Yr GPA	11	-07	13	-07	03	-10	-02	02	04	-04	-03	-10	06	89		---	2.40	.57
Aptitude	-13	09	-06	-02	-04	-07	-03	-11	03	00	-03	-03	03	13	14	---	80.35	3.53

Note: Decimal points omitted

.05 level = .20
.01 level = .25

Table F

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Sixth Sixth of 1958 Males

(N = 119)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																08	3.50	2.30
F	-08															-17	3.61	3.26
K	45	-39														06	16.50	4.45
1	22	17	29													-02	52.88	8.23
2	21	17	00	36												-02	50.72	10.41
3	29	12	36	74	33											04	58.12	7.68
4	12	19	20	34	31	40										-11	58.13	9.01
5	-04	00	-14	18	37	24	03									17	62.68	10.06
6	06	44	-10	22	30	32	34	26								01	55.92	8.00
7	-05	25	-04	35	38	32	36	33	43							-02	56.11	9.18
8	-07	02	05	35	29	27	36	12	27	49						02	56.71	9.90
9	-25	42	-33	-01	-25	05	23	-04	11	18	13					-18	56.23	10.98
0	00	25	-45	02	30	-18	01	18	21	39	18	-14				00	48.05	9.24
Sem GPA	06	-11	02	04	02	-01	-13	19	06	03	11	-17	10			——	2.81	.61
Yr GPA	08	-13	07	-02	-03	01	-15	15	01	-05	-02	-22	03	92		——	2.76	.62
Aptitude	01	08	05	-01	-03	-09	-16	-03	00	-10	-12	-16	08	33	33	——	92.96	3.72

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table G

Multiple Correlation, Beta Weights, and Intercorrelation Matrix for Total Groups of 1958 Iowa Males

(N = 714)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															07	3.33	2.07	037
F	-15														-01	3.91	3.08	025
K	43	-42													04	15.36	4.54	058
1	11	15	32												04	52.06	7.94	-004
2	10	26	-11	32											06	52.29	10.06	-033
3	18	01	34	67	26										08	57.23	7.19	030
4	02	18	24	37	19	37									-12	57.65	9.19	-013
5	-11	19	-18	22	31	31	12								13	59.37	10.04	131
6	-06	29	01	25	20	28	37	32							05	54.42	8.42	008
7	-17	36	-12	37	56	30	37	35	43						-02	57.92	10.17	-010
8	-11	36	02	43	32	29	43	27	38	63					-02	56.78	10.25	-026
9	-23	34	-21	06	-17	00	28	04	09	15	28				-12	57.12	10.86	-073
0	-10	36	-50	-08	47	-15	-08	22	11	38	20	-16			07	48.65	9.41	063
Yr GPA	00	-05	10	07	-01	10	-09	21	09	00	01	-12	05		——	2.15	28.11	——
Aptitude	-11	-08	13	07	-10	06	01	18	09	-04	03	-04	-01	55	——	55.71	.66	522

Note: Decimal points omitted

Multiple R = .58

.05 level = .08

.01 level = .10

Table H

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for First Sixth of 1958 Iowa Females

(N = 111)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																-09	3.72	2.08
F	-09															03	3.65	2.50
K	32	-27														02	15.29	4.34
1	05	18	26													-24	49.78	7.93
2	-10	31	-09	25												-09	49.35	8.40
3	17	15	31	7[illegible]	28											-05	54.50	8.26
4	-05	22	32	30	38	40										-07	54.84	9.51
5	-02	-03	-20	-14	-16	-21	-21									-03	51.50	9.89
6	-03	39	-04	28	40	35	29	-15								-08	53.[illegible]	8.63
7	-16	47	-10	37	68	41	48	-25	56							-12	55.69	8.62
8	-14	58	06	39	39	42	54	-14	50	71						-09	55.31	8.37
9	-15	33	-18	10	05	16	35	-17	18	33	42					11	57.27	9.71
0	-10	25	-46	-03	50	-11	-01	02	17	40	25	-03				-09	49.23	7.79
Sem GPA	-15	-06	08	-13	-13	01	-05	-06	02	-10	-05	08	-13			---	1.78	.55
Yr GPA	-14	-02	06	-17	-10	-03	-02	-08	-02	-09	-05	10	-09	92		---	1.75	.49
Aptitude	-16	-14	10	12	-05	05	10	-13	12	04	07	00	-02	33	39	---	14.87	7.59

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table I

Intercorrelation Matrix of MMPI, First Semester and Year GPA, and Aptitude for Second Sixth of 1958 Iowa Females

(N = 111)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																00	3.66	1.88
F	-19															05	3.19	2.41
K	39	36														-10	15.96	4.42
1	17	24	34													-15	48.86	7.42
2	06	33	-15	34												19	47.84	7.00
3	12	15	38	80	27											-05	54.04	7.69
4	09	01	37	35	12	40										01	55.36	7.62
5	-06	-11	-02	-14	-21	-18	-08									-01	50.39	7.95
6	-01	21	-05	30	24	31	25	-17								03	52.87	7.43
7	-07	40	02	44	51	39	41	-20	44							-03	53.21	8.57
8	-01	49	15	59	32	54	46	-12	37	66						-10	53.39	8.03
9	-27	-05	-23	-11	-17	-06	15	-07	03	15	15					00	55.67	9.82
0	06	45	-35	11	38	-08	-12	-11	17	29	21	-32				04	47.29	7.59
Sem GPA	02	04	-10	-17	11	-07	00	00	03	-07	-12	-01	03			—	2.10	0.53
Yr GPA	00	05	-10	-14	19	-04	01	-01	-03	-03	-10	00	04	90		—	2.09	0.51
Aptitude	01	-01	-13	-17	01	-20	-02	05	10	-01	-02	02	05	04	03	—	35.50	5.12

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table J

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Third Sixth of 1958 Iowa Females (N = 111)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																-06	3.50	1.95
F	-08															-05	3.34	2.34
K	37	-27														-11	15.76	3.96
1	03	26	18													-11	50.87	6.47
2	02	42	-29	35												-01	50.72	9.15
3	02	11	24	70	33											-10	55.19	6.83
4	-03	18	33	33	15	41										-03	56.70	9.25
5	14	-03	25	-02	-24	-10	-03									-13	45.23	9.40
6	-03	35	-14	22	40	30	20	-19								-01	55.82	7.98
7	-10	42	-08	48	65	43	32	-23	54							-12	50.10	8.73
8	-13	41	15	46	34	42	38	-12	36	64						-05	55.35	8.01
9	-30	20	-20	10	-20	05	22	01	15	11	22					-08	57.26	10.03
0	03	41	-47	10	63	-05	-20	-26	24	48	11	-23				00	51.23	9.31
Sem GPA	-03	-04	-06	-10	-47	-06	01	-07	-01	-12	-38	-06	-03			——	2.23	0.55
Yr GPA	-06	-04	-12	-12	-01	-11	-03	-14	-01	-13	-05	-07	01	92		——	2.21	0.52
Aptitude	-04	11	-10	-06	02	-06	04	-06	00	-05	-01	10	10	04	12	——	53.03	5.03

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table K

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Fourth Sixth of 1958 Females

(N = 111)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																-06	3.63	1.80
F	-26															-14	3.08	2.63
K	47	-43														12	16.61	4.23
1	08	26	14													00	50.44	7.39
2	-09	47	-22	53												-07	49.63	8.45
3	18	20	21	79	41											-05	55.59	7.59
4	11	29	32	34	21	46										-26	56.43	8.94
5	-07	-03	09	-14	-19	-10	03									-04	46.33	7.98
6	05	38	-08	36	41	41	31	-02								02	55.00	8.68
7	-03	38	01	58	68	55	36	-17	51							-06	54.91	8.11
8	-02	51	17	54	49	49	59	07	41	67						-12	54.77	8.65
9	-23	40	-17	13	02	23	42	05	31	26	40					-06	54.67	10.51
0	-12	35	-50	29	55	04	-20	-20	17	33	17	-18				-02	50.29	9.44
Sem GPA	-06	-08	12	00	05	-03	-18	-07	08	02	-05	-05	03			---	2.39	0.54
Yr GPA	-06	-14	13	00	-06	-05	-26	-03	-02	-06	-12	-06	-02	91		---	2.37	0.55
Aptitude	-03	-04	11	04	-14	06	04	-14	03	04	07	-07	-07	00	06	---	68.30	4.32

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table L

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude for Fifth Sixth of 1958 Iowa Females

(N = 111)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																08	3.73	2.13
F	-02															-22	2.52	2.00
K	49	-27														27	17.11	4.36
1	32	23	19													00	50.29	5.33
2	10	38	-19	44												00	47.68	7.27
3	34	04	31	65	26											11	54.92	6.40
4	09	22	19	18	15	33										08	55.59	8.18
5	-05	-24	20	-06	-24	-07	-21									-14	47.01	9.41
6	-10	40	-08	06	24	06	20	-18								-11	55.34	8.16
7	-04	43	-11	35	52	19	33	-32	38							14	55.00	6.99
8	04	57	17	34	23	21	42	-17	42	39						-05	54.40	6.34
9	-19	25	-24	01	-17	02	28	-08	19	23	28					-11	55.33	10.28
0	-09	32	-52	08	55	-23	-14	-30	11	34	10	-21				-11	49.10	8.60
Sem GPA	15	-04	06	03	01	04	10	-08	10	-07	-10	-08	-04			—	2.73	0.55
Yr GPA	17	-12	16	03	-01	08	12	-11	05	-02	-11	-11	-08	93		—	2.69	0.57
Aptitude	07	-03	18	01	01	09	19	-03	18	-07	00	-14	-04	32	35	—	81.81	4.21

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table M

Intercorrelation Matrix of MMPI, First Semester and Year GPAs, and Aptitude

for Sixth Sixth of 1958 Females

(N = 111)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Sem GPA	Yr GPA	Partial r	Mean	SD
L																-10	3.46	1.87
F	-20															11	2.40	1.74
K	45	-21														-11	17.64	3.89
1	14	13	39													03	49.85	3.42
2	06	20	-06	42												07	47.26	7.51
3	11	09	31	70	33											08	55.09	6.36
4	11	19	37	45	24	52										-04	54.61	8.33
5	-07	-06	18	06	-25	02	-11									-05	46.30	9.06
6	04	32	09	27	20	21	27	-07								00	55.16	7.05
7	-11	24	12	44	52	33	32	-17	35							02	54.10	7.02
8	-04	40	26	48	34	30	52	00	42	65						02	53.91	6.98
9	-35	16	-10	00	-26	05	25	-05	00	11	26					01	54.04	9.24
0	-10	30	-41	05	51	-15	-07	-22	12	41	25	-22				05	46.83	9.21
Sem GPA	-13	11	-01	08	09	08	-08	-08	09	09	06	01	04			---	3.08	.31
Yr GPA	-14	11	-12	05	06	03	-08	-11	00	03	06	04	06	27		---	3.08	.32
Aptitude	-16	03	-05	05	-01	-13	-11	-09	-01	-02	11	09	02	91	34	---	94.31	3.16

Note: Decimal points omitted

.05 level = .20

.05 level = .25

Table N

Multiple Correlation, Beta Weights, and Intercorrelation Matrix for Total Groups of 1958 Iowa Females

(N = 666)

Variables:	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															-03	3.62	1.96	-050
F	-13														00	3.03	2.33	018
K	40	-33													00	16.40	4.28	083
1	12	22	24												-01	50.02	6.76	-090
2	00	37	-18	38											00	48.73	8.09	072
3	16	13	29	74	31										00	54.89	7.24	060
4	05	19	30	32	22	42									06	55.59	8.70	-068
5	-01	-05	05	-09	-21	-12	-11								-05	47.79	9.27	-032
6	-02	32	-04	26	32	29	26	-16							-01	54.55	8.09	026
7	-09	40	-04	45	61	39	37	-23	47						00	55.00	8.13	-063
8	-05	30	14	48	37	43	49	-08	41	66					-08	54.52	7.81	-041
9	-24	24	-20	04	-10	08	28	-04	15	21	30				-03	55.70	10.01	025
0	-06	34	-44	12	53	-08	-12	-20	17	38	19	-19			00	09.33	8.77	-006
Yr GPA	-04	-14	12	-04	-05	00	04	-17	07	-07	-07	-08	-01		——	2.36	.68	——
Aptitude	-03	-18	18	03	-07	04	-01	-20	12	-03	-02	-09	02	63	——	57.97	27.52	610

Note: Decimal points omitted

Multiple R = .64

.05 level = .09

.01 level = .11

Table O

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for First Sixth of 1959 Iowa Males

(N = 133)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-05	3.11	2.27
F	04														02	4.72	4.02
K	33	-39													02	14.45	4.42
1	12	34	25												13	53.11	8.47
2	09	42	-12	37											09	54.73	12.13
3	12	10	31	71	28										15	55.93	7.57
4	-11	17	19	32	40	44									12	58.77	10.15
5	03	19	01	30	34	30	22								13	55.13	9.34
6	04	39	-11	39	35	28	31	23							07	54.30	9.77
7	-12	51	-12	47	55	34	39	32	54						04	60.20	11.66
8	-30	17	-04	17	22	26	18	21	09	34					00	58.27	13.10
9	-16	30	-06	21	-10	15	32	04	32	26	03				13	60.36	10.63
0	-14	46	-42	08	53	-14	05	16	23	53	15	-04			-06	49.57	9.61
Yr GPA	-04	03	00	13	10	14	14	18	08	04	01	14	-05		—	1.38	.62
Aptitude	-06	-14	25	-04	-11	12	-33	14	-08	-04	-08	-08	-13	-06	—	15.11	7.70

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table P

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Second Sixth of 1959 Iowa Males

(N = 133)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-09	3.39	2.02
F	-13														07	3.78	2.85
K	51	-35													-09	14.96	4.36
1	19	05	37												-11	51.46	7.54
2	13	17	01	36											-03	51.70	9.70
3	29	-08	38	69	40										-01	56.02	6.84
4	11	17	29	25	25	26									-14	57.69	9.30
5	01	15	-12	29	22	25	-05								05	55.81	9.28
6	-11	31	-09	11	14	22	19	06							02	53.43	8.12
7	-15	26	-04	30	44	38	28	35	40						08	56.60	9.03
8	-11	51	11	39	23	34	41	26	38	58					-05	55.31	8.38
9	-18	32	-19	01	-25	02	33	-02	14	07	33				-06	58.02	10.22
0	-24	33	-49	-11	35	-18	-13	21	04	36	12	-18			14	47.31	7.86
Yr GPA	-07	08	-08	-10	-03	00	-14	06	02	09	-04	-06	14		——	1.85	.35
Aptitude	17	07	08	15	-01	08	01	08	06	08	16	00	05	08	——	35.87	5.09

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table Q

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Third Sixth of 1939 Iowa Males

(N = 133)

riables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															13	3.41	1.87
F	-30														-15	3.65	2.69
K	42	-40													02	15.51	4.23
1	04	26	23												-08	33.45	7.72
2	04	32	-20	29											-02	52.96	10.37
3	18	05	26	66	21										-02	37.77	7.32
4	-06	27	26	38	24	43									-09	38.30	9.38
5	05	12	-34	11	36	23	-02								14	38.03	10.13
6	-03	19	-14	10	28	31	24	26							07	34.08	7.77
7	-19	35	-26	28	67	22	30	35	37						00	38.20	9.96
8	-21	49	-10	39	43	31	43	16	36	66					-05	36.89	9.25
9	-26	24	-09	06	-27	03	28	-16	03	-07	26				-08	37.86	10.66
0	-14	27	-47	-02	57	-16	-07	34	17	39	28	-34			19	49.23	9.02
GPA	13	-15	00	-09	-01	-03	-09	15	07	01	-06	-09	03		—	1.94	.54
titude	02	02	-15	-10	07	-11	03	14	04	01	-05	-13	09	12	—	51.39	4.49

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table R

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fourth Sixth of 1959 Males

(N = 133)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-17	2.80	1.95
F	-24														12	4.08	3.21
K	44	-45													-08	14.47	4.38
1	21	19	25												-08	52.32	7.64
2	02	38	-27	29											04	54.77	11.19
3	35	08	27	70	27										-03	57.38	7.39
4	06	32	-02	29	27	38									-02	56.55	9.24
5	-01	29	-19	23	32	46	26								17	59.71	10.12
6	-03	46	-15	22	32	31	38	31							14	53.80	8.04
7	-18	54	-27	35	62	29	45	48	46						07	60.68	11.02
8	-18	55	-10	38	41	37	55	38	54	77					10	57.51	10.49
9	-16	26	-03	-02	-24	07	30	15	15	21	33				-05	56.21	10.46
0	-21	45	-49	15	66	-03	05	30	23	61	36	-14			10	50.39	9.89
Yr GPA	-17	12	-08	-09	04	-04	-03	17	14	07	10	-06	11		——	2.12	.61
Aptitude	03	-06	04	08	-06	13	13	-06	01	-05	-02	-07	-08	-08	——	65.49	3.67

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table 8

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fifth Sixth of 1959 Iowa Males

(N = 133)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															15	2.63	1.39
F	00														-21	3.45	2.72
K	31	-40													09	15.94	4.01
1	12	09	31												00	52.62	8.12
2	15	22	-17	27											00	51.39	10.25
3	15	10	26	60	27										-05	56.87	7.31
4	00	36	15	32	28	52									-15	57.14	9.97
5	-12	06	-26	13	32	22	17								14	59.83	9.86
6	-04	13	01	24	07	34	17	24							01	54.17	7.51
7	-09	25	-04	40	50	31	47	42	27						-12	57.24	9.41
8	00	42	08	51	31	44	61	23	24	61					-09	55.80	9.00
9	-11	33	-23	13	-11	11	32	08	-05	13	33				-07	56.52	10.86
0	03	32	-44	04	50	-20	-02	29	-04	42	18	-17			-02	58.40	8.71
Yr GPA	13	-20	09	-02	-02	-07	-14	15	02	-12	-09	-07	-01		—	2.27	.37
Aptitude	-09	01	02	-11	-10	-09	05	07	05	-02	-03	-01	03	19	—	79.02	4.45

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table T

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Sixth Sixth of 1959 Iowa Males

(N = 133)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															04	2.79	?.98
F	-16														-11	3.95	..9
K	50	-31													07	15.32	4.76
1	23	13	32												-04	52.90	8.11
2	07	41	-12	31											-05	53.63	11.34
3	25	05	37	75	33										-01	57.01	7.28
4	-01	41	12	24	32	26									-10	57.05	8.92
5	-18	19	-23	12	25	06	06								-06	62.14	11.00
6	-03	40	-08	29	36	28	37	34							-10	55.75	8.92
7	-19	42	-17	32	55	27	35	37	48						-06	58.36	10.37
8	-09	31	-01	34	21	25	29	22	38	51					-12	56.94	10.27
9	-28	36	-25	01	-14	-01	36	08	14	25	26				-16	55.87	11.19
0	-16	35	-53	06	54	-02	-01	40	28	51	21	-06			02	51.23	10.66
Yr GPA	-01	-12	08	03	-03	03	-13	03	-08	-04	-09	-19	03		—	2.68	.61
Aptitude	-09	-04	04	14	03	08	-10	18	01	02	04	-11	03	46	—	93.84	3.77

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table U

Multiple Correlation, Beta Weights, and Intercorrelation Matrix for Total Groups of 1959 Iowa Males

(N = 796)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															-01	3.02	1.98	-031
F	-12														-02	3.94	3.14	-012
K	41	-39													-01	15.14	4.40	061
1	15	19	28												-02	52.65	7.97	-037
2	08	34	-15	32											02	53.20	10.94	012
3	22	05	31	69	29										00	56.83	7.35	013
4	00	27	16	30	30	38									-06	57.58	9.53	-062
5	-06	15	-17	19	29	25	09								11	58.45	10.27	102
6	-03	37	-09	24	27	29	28	25							04	54.26	8.42	056
7	-16	42	-16	36	60	30	37	37	43						01	58.58	10.39	-030
8	-16	34	-02	35	30	32	39	23	31	57					-02	56.79	10.27	-021
9	-18	31	-19	07	-17	05	32	00	13	15	24				-05	57.47	10.78	004
0	-15	37	-47	04	54	-11	-02	30	17	52	22	-15			05	49.39	9.41	045
Yr GPA	-06	-06	04	-01	00	03	-08	21	06	00	-03	-11	07		—	2.07	.68	—
Aptitude	-10	-08	09	01	-03	06	-06	24	05	-02	-03	-14	05	50	—	56.90	26.74	458

Note: Decimal points omitted

.05 level = .07

.01 level = .09

Multiple R = .52

Table V

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for First Sixth of 1959 Iowa Females

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															04	3.66	1.86
F	-05														-13	3.97	2.81
K	41	-24													15	15.12	3.85
1	09	18	19												04	50.24	6.75
2	05	39	-15	32											-02	50.08	8.63
3	15	-02	26	62	24										02	54.85	6.59
4	00	24	12	10	37	27									00	56.09	8.02
5	-16	-12	-02	-10	-22	-12	-06								-16	50.09	9.20
6	01	21	-10	11	28	19	25	-23							09	53.19	8.30
7	-17	35	-09	37	55	32	37	-17	28						-08	55.92	8.69
8	-15	55	00	38	35	28	38	-04	28	67					-17	55.73	8.36
9	-20	11	-22	06	-08	09	18	12	06	14	36				-06	58.92	10.31
0	-05	46	-42	12	53	-10	04	-27	13	46	26	-18			-02	49.06	8.20
Yr GPA	05	-13	15	05	-02	02	-01	-18	08	-09	-18	-08	-02		----	1.65	.53
Aptitude	05	-04	04	07	02	02	-04	-03	-04	-05	-05	-10	-01	17	----	14.78	7.93

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table W

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Second Sixth of 1959 Iowa Females

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-05	3.63	2.04
F	-16														08	3.13	1.90
K	46	-38													-05	16.02	4.63
1	16	04	28												-07	49.25	6.33
2	-14	16	-37	16											-02	50.36	8.82
3	18	-15	35	65	05										-08	54.69	6.09
4	00	05	28	32	06	37									-02	55.68	8.93
5	-04	03	03	03	-06	-12	04								27	49.14	8.33
6	-03	09	-15	17	26	24	19	-34							-05	55.99	7.87
7	-35	36	-23	30	52	17	21	01	21						01	56.98	8.59
8	-23	29	07	41	16	22	39	08	22	64					-01	54.98	7.76
9	-28	16	-18	05	-24	11	19	-07	10	19	32				-07	56.59	9.72
0	-20	29	-55	-05	65	-29	-26	-06	18	50	18	-26			03	50.27	9.59
Yr GPA	-06	08	-05	-07	-02	-09	-02	26	-04	01	00	-08	04		----	1.91	.53
Aptitude	-13	01	-03	-03	-02	-05	03	-05	08	-02	07	-05	05	13	----	36.79	5.38

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table X

Interoorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Third Sixth of 1959 Iowa Females

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															15	3.70	1.91
F	-15														-11	2.85	2.07
K	44	-42													13	16.83	4.30
1	08	19	26												03	50.68	6.06
2	-03	33	-19	23											17	49.93	7.58
3	16	09	25	64	20										05	54.62	6.71
4	04	27	16	30	27	37									-11	56.14	7.96
5	-04	-01	14	-02	-08	-07	01								-08	49.06	8.31
6	-05	20	-09	11	20	15	17	-10							04	53.57	7.28
7	-24	29	01	28	44	27	29	-02	32						07	55.50	7.04
8	-14	39	08	47	25	33	46	08	36	63					-12	55.08	7.30
9	-26	19	-25	08	-23	02	18	04	05	14	33				-15	54.54	9.04
0	-17	33	-51	-05	45	-23	-01	-22	12	24	05	-14			04	50.09	8.48
YR GPA	13	-10	12	04	17	04	-12	-08	04	08	-14	-13	08		---	2.26	.46
Aptitude	-07	04	-03	04	04	-03	-06	-02	02	08	-11	06	17	26	---	54.06	4.73

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table Y

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Fourth Sixth of 1959 Iowa Females

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-20	3.34	2.16
F	-24														08	3.31	2.71
K	53	-46													01	15.65	4.82
1	12	11	32												06	49.69	7.41
2	-21	43	-36	31											11	49.92	7.91
3	20	09	34	64	12										00	54.10	6.40
4	06	25	17	29	23	04									-10	55.10	8.76
5	-03	-07	-02	-15	-20	-18	-06								-09	47.51	8.14
6	-02	25	-04	25	23	24	26	-26							-03	55.09	9.06
7	-25	47	-08	44	54	28	30	-21	43						12	55.77	8.81
8	-18	56	00	50	35	39	40	-07	41	74					03	54.79	8.59
9	-10	22	-02	04	-09	13	22	06	10	08	20				27	55.37	10.04
0	-44	50	-59	06	60	-22	-02	-09	17	50	33	-14			21	50.93	9.64
Yr GPA	-20	08	01	06	12	02	-09	-10	-03	12	04	-28	21		----	2.40	.58
Aptitude	-07	05	-02	08	14	00	09	-10	-04	04	11	-13	09	06	----	69.98	3.97

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table Z

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Fifth Sixth of the 1959 Iowa Females (N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-11	3.47	3.33
F	-17														09	2.64	2.12
K	59	-30													02	16.77	4.35
1	10	30	22												08	50.09	6.32
2	-06	50	-29	32											06	48.68	9.07
3	22	11	32	72	21										04	55.08	6.75
4	13	18	30	15	13	28									-01	54.98	8.41
5	-03	-16	11	-16	-37	-12	-15								04	45.92	8.10
6	-13	23	-11	27	18	19	15	-19							06	54.07	7.03
7	-12	46	-19	45	71	33	18	-27	33						07	54.65	7.56
8	-02	50	09	61	42	46	43	-07	26	64					10	53.92	6.47
9	-18	-01	-06	02	-30	08	22	13	03	-03	20				-14	54.73	9.78
0	-24	41	-55	-03	69	-17	-09	-29	13	54	21	-34			03	50.03	51.10
Yr GPA	-11	08	02	06	06	03	-02	03	07	07	09	-15	04		----	2.69	.49
Aptitude	01	-07	02	-11	03	-05	-05	-08	-07	-02	-08	-04	-06	16	----	81.36	3.09

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table AA

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Sixth Sixth of 1959 Iowa Females

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-01	3.24	1.78
F	-20														02	3.02	2.13
K	43	-33													00	16.81	4.53
1	12	20	28												-06	49.55	6.30
2	03	31	-17	42											00	50.15	8.39
3	24	09	33	68	24										-03	54.90	7.29
4	04	34	26	47	40	47									-07	55.88	8.88
5	-11	-04	10	04	-11	00	01								14	43.90	8.38
6	-08	21	-20	20	43	15	26	-18							08	58.12	7.60
7	-11	26	-11	52	70	39	45	-07	50						-01	55.63	8.09
8	-12	50	06	59	40	40	52	10	33	53					01	55.22	7.94
9	-17	21	-18	17	-17	19	22	00	-02	15	31				-01	54.09	9.95
0	-15	25	-57	-05	57	-16	-04	-08	34	46	16	-19			03	51.16	9.30
Yr GPA	-02	04	-01	-07	00	-04	-07	14	07	-02	02	-01	04		—	2.96	.53
Aptitude	-05	07	-05	-05	-08	-06	-02	02	-03	-06	03	-01	05	23	—	93.33	3.72

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table BB

Multiple Correlation, Beta Weights, and Intercorrelation Matrix for Total Groups of 1959 Iowa Females

(N = 787)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															-05	3.50	1.99	-092
F	-16														01	3.16	2.36	054
K	47	-37													12	16.20	4.48	141
1	11	16	26												01	49.91	6.55	-005
2	-06	35	-26	29											04	49.85	8.44	020
3	19	04	31	65	18										00	54.70	6.66	029
4	05	22	21	27	24	35									-05	55.66	8.53	-053
5	-05	-03	03	-05	-17	-10	-02								01	47.63	8.70	028
6	-06	18	-10	17	26	19	21	-25							03	55.01	8.06	041
7	-21	37	-12	39	58	29	30	-10	34						03	55.76	8.20	009
8	-14	48	04	48	32	34	43	02	31	66					-03	54.97	7.80	-077
9	-18	17	-20	07	-18	10	20	08	04	12	29				-11	55.72	9.95	-043
0	-22	36	-53	00	59	-20	-07	-17	19	45	20	-22			06	50.25	9.25	069
Yr GPA	-08	-08	10	00	02	00	-06	-15	10	-01	-05	-19	09		---	2.31	.68	---
Aptitude	-07	-13	10	-01	-02	00	-03	-24	12	-05	-04	-16	07	65	---	58.45	27.14	624

Note: Decimal points omitted

.05 level = .07

.01 level = .09

Multiple R = .67

Table CC

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for First Sixth of Wisconsin Males

(N = 282)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-08	3.48	2.12
F	-14														-19	4.82	3.57
K	45	-42													10	14.06	4.59
1	18	15	31												10	53.97	8.77
2	11	11	-02	33											-04	54.34	9.69
3	22	04	41	60	27										04	56.91	7.59
4	02	25	23	33	30	42									-04	59.16	9.60
5	-02	-02	-03	04	29	20	14								17	57.90	10.78
6	02	39	-07	28	21	28	27	17							-14	54.48	9.06
7	-12	36	-12	32	51	24	32	25	43						02	59.21	10.25
8	-17	62	-11	41	24	26	42	14	46	60					-04	59.27	11.16
9	-28	40	-31	02	-11	-02	27	02	17	19	45				-10	60.31	10.51
0	-05	35	-44	09	44	-14	-06	15	26	49	29	-09			-13	50.33	8.93
Yr GPA	-08	-19	10	-10	-04	04	-04	17	-13	-07	-13	-10	-13		---	1.40	.84
Aptitude	-04	-04	-03	-01	-02	04	04	04	07	-05	-03	06	02	08	---	99.32	13.26

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table DD

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for

Second Sixth of Wisconsin Males

(N = 282)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-05	3.46	2.05
F	-02														-12	4.67	3.19
K	34	-33													05	14.69	4.54
1	16	12	37												10	54.33	8.77
2	17	27	-11	28											00	55.59	9.69
3	21	-02	39	60	28										10	57.50	7.59
4	01	26	24	27	20	37									-09	58.33	9.60
5	03	31	-15	14	36	23	16								07	57.97	10.78
6	04	34	-06	21	23	27	34	34							02	54.09	9.06
7	-03	35	-03	33	56	24	30	35	39						05	59.17	10.25
8	00	56	05	47	33	33	43	33	43	61					-03	57.94	11.16
9	-19	25	-13	-02	-24	03	32	04	09	06	27				-03	57.53	10.51
0	03	32	-48	-01	56	-18	-13	17	17	39	-18	-32			-09	51.24	8.92
Yr GPA	-06	-11	04	08	-01	10	-09	07	02	00	-03	-02	-09		----	1.60	.84
Aptitude	-08	05	-05	-08	-07	-07	-03	00	-01	-04	-01	08	-03	17	----	121.59	4.34

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table EE

Intercorrelatior Matrix of MMPI, First Year GPA, and Aptitude

for Third Sixth of Wisconsin Males

(N = 282)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															06	3.33	2.14
F	-17														-19	4.08	2.97
K	46	-45													00	14.99	4.43
1	12	06	31												-01	53.34	8.85
2	-04	19	-07	28											-05	53.14	10.53
3	19	02	32	69	28										01	56.22	7.75
4	00	25	20	40	22	44									-22	58.03	9.19
5	-04	10	-10	16	28	29	08								13	58.82	9.72
6	02	30	-05	25	28	25	30	20							-10	54.80	8.89
7	-19	32	-10	38	53	32	37	25	47						-05	57.81	10.13
8	-12	56	-05	36	34	28	46	20	48	65					-13	57.19	10.01
9	-16	35	-28	10	-22	13	35	01	09	11	30				-04	57.86	10.43
0	-14	32	-48	-07	46	-18	-12	17	23	37	26	-22			-01	50.26	9.23
Yr GPA	00	-19	01	-02	-06	00	-21	13	-09	-05	-13	-04	00		---	1.97	.78
Aptitude	04	-03	09	-12	-05	-07	04	01	06	02	-03	03	-08	12	---	135.28	3.46

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table FF

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fourth Sixth of Wisconsin Males

(N = 282)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															09	3.36	1.99
F	-06														-03	4.05	2.95
K	33	-37													03	15.11	4.40
1	18	22	30												06	53.82	10.32
2	15	33	-05	31											01	54.28	10.75
3	16	19	31	66	30										01	57.14	8.84
4	-03	38	18	37	34	43									-06	57.74	10.43
5	01	24	-22	09	33	16	20								18	59.51	10.48
6	00	36	-04	26	27	33	35	39							19	55.06	10.27
7	-11	40	-03	35	54	35	41	36	36						04	57.42	9.37
8	-13	60	-03	37	40	35	59	25	41	69					-06	57.64	6.52
9	-20	35	-25	10	-14	13	32	17	18	15	37				-08	57.21	6.76
0	-12	32	-47	-02	48	-19	-03	23	06	43	26	-13			-01	50.95	8.15
Yr GPA	09	-03	04	07	01	01	-06	18	19	04	-06	-08	-01		---	2.19	.81
Aptitude	-02	06	09	12	03	05	05	-07	00	04	00	-03	-05	06	---	146.43	3.22

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table GG

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fifth Sixth of Wisconsin Males

(N = 282)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-06	3.41	2.09
F	-06														-06	4.12	4.38
K	41	-35													01	15.44	4.45
1	15	26	30												-02	53.22	8.20
2	05	35	-16	33											-07	54.24	11.34
3	11	10	34	69	25										-03	57.54	7.09
4	-01	32	24	41	19	45									-10	58.44	8.71
5	-09	27	-24	19	34	25	13								09	60.72	9.75
6	09	23	-03	23	13	29	31	24							-06	54.70	8.31
7	-07	39	-11	46	50	35	39	41	32						-04	58.28	9.37
8	-09	51	00	40	28	29	47	31	38	62					-11	58.20	9.30
9	-10	27	-16	08	-21	08	31	07	17	07	26				-17	57.42	9.88
0	-12	41	-55	01	54	-17	-11	27	08	46	26	-20			04	50.82	10.17
Yr GPA	-06	-07	02	-02	-08	-03	-11	09	03	-04	-12	-18	04		---	2.43	.77
Aptitude	01	-06	07	-04	-05	-03	-07	04	04	-02	-05	-07	-01	12	---	158.72	4.12

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table HH

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Sixth Sixth of Wisconsin Males

(N = 282)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-12	3.22	1.96
F	-12														-06	3.80	2.54
K	41	-30													-04	15.65	4.54
1	15	12	42												02	52.23	1.68
2	00	32	-10	25											-06	55.15	11.45
3	30	09	43	67	28										-08	56.82	7.20
4	08	32	33	34	29	52									-20	56.57	10.05
5	-10	24	-10	10	35	18	23								16	62.53	9.91
6	05	09	11	18	22	35	29	40							16	54.92	7.84
7	-14	31	10	37	50	31	46	45	44						10	57.04	9.47
8	-08	41	24	42	33	39	54	33	35	72					-10	56.48	8.96
9	-13	13	-06	02	-09	11	28	09	-04	16	25				-10	55.18	9.35
0	-18	38	-40	-01	47	-24	-06	25	12	37	24	-27			08	51.23	9.54
Yr GPA	-11	-05	-02	03	-04	-07	-19	17	06	02	-09	-14	08		—	2.81	.81
Aptitude	00	02	04	02	05	00	-03	06	08	-01	-01	-13	02	36	—	176.65	7.47

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table II

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude
for Total Group of Wisconsin Males
(N = 1693)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															-03	3.71	2.06	-067
F	-09														-11	4.26	3.23	-039
K	39	-38													04	14.99	4.49	053
1	16	16	32												-03	53.48	8.53	043
2	07	26	-09	29											-08	54.46	10.93	-059
3	20	07	36	65	28										01	57.02	7.77	009
4	02	30	23	35	25	43									-11	58.04	9.72	-102
5	-04	16	-12	11	32	21	15								13	59.58	10.24	161
6	03	29	-02	23	22	29	31	29							-01	54.67	8.60	033
7	-11	36	-06	37	52	30	38	33	40						-02	58.15	9.89	037
8	-09	56	00	41	32	31	49	24	42	65					17	57.79	10.07	-078
9	-17	31	-21	06	-18	08	31	05	11	13	33				-10	57.58	10.19	-043
0	-10	34	-47	00	49	-18	-09	21	15	41	24	-21			-02	50.81	9.51	-006
Yr GPA	-05	-15	08	-03	-03	-01	-13	19	02	-05	11	-14	-01		—	2.07	.94	—
Aptitude	-04	-11	11	-07	00	00	-06	15	03	-07	-07	-13	02	52	—	139.70	25.95	—

Note: Decimal points omitted

Multiple R = .56

.05 level = .06

.01 level = .08

Table JJ

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for First Sixth of Wisconsin Females

(N = 228)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	GPA	Partial r	Mean	SD
L															00	2.34	2.34
F	-23														-17	4.20	2.00
K	40	-39													-07	15.24	4.13
1	13	20	23												-20	51.[illegible]	6.34
2	-05	42	-20	35											14	51.24	8.77
3	26	10	28	61	26										-15	56.33	7.62
4	-05	35	15	33	33	43									-30	56.56	9.14
5	06	02	10	05	-13	01	-04								-12	46.67	8.16
6	-02	27	05	28	34	35	29	-16							-08	55.56	8.01
7	-14	36	-11	33	66	32	38	-15	43						-16	55.95	8.29
8	-12	55	06	44	48	40	51	03	41	65					-30	56.26	7.99
9	-17	28	-20	00	-10	-01	28	-01	01	12	24				-15	55.42	11.15
0	-17	37	-46	15	59	-08	07	-18	19	46	30	-20			04	50.62	9.26
Yr GPA	-04	-15	-09	-19	-13	-12	-28	-09	-07	-15	-28	-15	05		---	2.57	.71
Aptitude	-16	05	-09	02	02	10	06	10	04	02	05	00	04	24	---	90.35	11.40

Note: Decimal points omitted

.05 level = .14

.01 level = .18

Table KK

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Second Sixth of Wisconsin Females

(N = 228)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-05	3.91	2.10
F	-20														-02	3.85	2.50
K	40	-32													-01	15.57	4.32
1	11	25	35												-04	50.22	6.8
2	01	48	-14	36											04	50.49	8.96
3	07	07	23	55	09										13	55.62	8.17
4	-05	28	11	27	16	48									04	55.60	10.05
5	01	-02	21	06	-09	-20	-14								-10	45.29	8.93
6	-06	30	03	33	42	22	17	-07							01	55.60	8.92
7	-20	37	-08	31	35	47	47	-14	38						11	55.19	9.33
8	-22	49	-01	33	22	43	47	-14	30	73					03	55.62	8.92
9	-23	11	-16	-02	-24	13	33	00	-08	20	29				-09	56.41	9.93
0	-12	44	-38	09	59	-25	-14	-12	26	21	15	-35			-35	51.40	10.18
Yr GPA	-05	-02	-01	-03	04	13	04	-10	01	-11	03	-09	00		---	2.92	.81
Aptitude	04	10	03	12	-04	11	03	-03	08	-01	08	-10	00	04	---	110.80	3.90

Note: Decimal points omitted

.05 level = .14

.01 level = .18

Table LL

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Third Sixth of Wisconsin Females

(N = 228)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-01	3.84	1.92
F	-19														-08	3.46	2.30
K	36	-33													-08	15.70	4.03
1	05	35	17												-04	51.76	7.54
2	-06	43	-23	40											-03	52.01	9.37
3	01	16	19	68	30										-10	56.83	8.19
4	-03	33	26	27	24	32									06	57.14	9.38
5	03	-03	15	-02	-20	-09	05								-04	47.69	9.39
6	-14	29	-16	26	31	31	31	-18							-03	56.66	8.06
7	-20	43	-16	46	63	43	41	-24	45						-06	57.00	8.30
8	-19	52	00	44	38	40	53	-11	47	70					-14	56.46	8.23
9	-09	18	-09	10	22	12	22	07	13	08	29				31	57.05	10.16
0	-11	40	-47	08	62	-05	-03	-19	13	45	27	-31			00	50.58	9.40
Yr GPA	01	-08	-06	-05	-04	-09	-05	-03	-03	-08	-16	-09	-01		---	2.35	.71
Aptitude	08	-06	10	-05	-09	06	-08	05	00	-16	-15	-11	-05	14	---	123.10	3.30

Note Decimal points omitted

.05 level = .14

.01 level = .18

Table MM

Intercorrelation Matrix of MMPI, First Year GPA and Aptitude

for Fourth Sixth of Wisconsin Females

(N = 228)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-02	3.96	2.16
F	-05														-02	3.59	2.49
K	37	-43													-04	16.09	4.28
1	07	09	21												-01	50.22	6.57
2	01	23	-25	26											16	50.09	8.48
3	10	04	28	66	25										00	55.78	6.44
4	06	17	21	19	15	33									-10	56.56	8.19
5	10	-05	13	06	-27	-04	-09								-08	46.50	8.13
6	07	18	-03	12	33	27	23	-23							10	54.77	8.05
7	-17	27	-14	36	56	28	28	-19	39						-01	54.93	7.34
8	-13	35	04	36	29	31	44	-02	30	59					03	54.61	7.36
9	-17	20	-15	05	-22	07	26	03	03	09	33				-03	57.02	9.75
0	-07	28	-52	05	65	-12	-10	-18	15	44	12	-33			13	49.06	9.16
Yr GPA	-01	-02	-04	00	15	00	-10	-08	10	00	02	-04	13		----	2.11	.69
Aptitude	08	-04	-01	-10	-12	-01	-03	04	-04	-13	-10	-07	-03	08	----	134.10	3.18

Note: Decimal points omitted

.05 level = .14

.01 level = .18

Table NN

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fifth Sixth of Wisconsin Females

(N = 228)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-01	3.61	1.88
F	-18														-08	3.47	2.68
K	48	-37													09	16.05	4.05
1	16	16	29												-04	50.71	7.23
2	-04	27	-22	31											-01	51.75	9.97
3	15	04	30	68	25										09	55.83	7.71
4	-02	34	19	34	30	37									08	57.95	9.73
5	06	-01	15	-03	-27	-13	-03								-02	48.74	8.07
6	-18	31	-18	19	37	25	28	-17							09	55.33	8.85
7	-19	29	-08	39	64	31	37	-22	46						04	56.59	9.04
8	-16	48	02	43	37	31	53	-11	43	69					00	56.06	8.44
9	-18	20	-11	02	-15	03	28	-05	08	16	42				-14	58.04	10.80
0	-17	36	-52	08	54	-11	-04	-15	25	42	20	-27			-03	50.62	10.10
Yr GPA	-01	-09	10	-04	-02	09	08	-02	09	04	00	-13	-04		---	2.01	.71
Aptitude	-03	-11	11	-05	-14	00	-02	00	04	-02	02	11	-14	06	---	146.00	3.83

Note: Decimal points omitted

.05 level = .14

.01 level = .18

Table 00

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Sixth Sixth of Wisconsin Females

(N = 228)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-02	3.65	2.01
F	-14														-05	3.38	2.60
K	35	-39													04	15.70	4.41
1	13	22	21												06	51.80	6.55
2	01	31	-23	39											05	52.90	8.78
3	12	22	23	75	33										08	56.12	7.55
4	-04	36	14	33	26	39									-12	58.18	8.86
5	-02	03	-02	-13	-16	-14	-05								-08	50.07	8.53
6	-01	36	-10	22	29	27	29	-19							-03	54.40	9.00
7	-16	33	-09	40	57	40	42	-18	36						-02	57.58	8.94
8	-14	51	-01	39	40	41	53	-04	48	68					-09	56.78	8.24
9	-11	-20	-18	07	-09	13	27	05	12	16	31				24	58.57	10.24
0	-14	30	-48	06	56	-08	04	-14	23	43	25	-18			-07	50.13	8.62
Yr GPA	00	-03	00	03	03	03	-13	-06	-03	-05	-10	00	-06		——	1.50	.82
Aptitude	-07	06	-13	-11	-06	-18	-06	-07	-02	-14	-05	-09	04	26	——	165.50	9.68

Note: Decimal points omitted

.05 level = .14

.01 level = .18

Table PP

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Total Group of Wisconsin Females

(N = 1364)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															-01	3.73	2.21	-029
F	-16														-06	3.66	2.58	-027
K	39	-37													-01	15.75	4.21	005
1	11	22	24												-04	50.95	6.89	-054
2	-02	36	-21	35											-01	51.41	9.11	020
3	11	11	25	65	25										01	56.09	7.64	062
4	-02	31	17	30	25	39									-07	57.00	9.28	-040
5	04	01	11	01	-16	-10	-03								-05	47.49	8.69	-028
6	-05	28	-06	23	34	28	26	-17							02	55.39	8.52	036
7	-17	35	-11	38	57	38	40	-19	40						-02	56.20	8.61	036
8	-16	49	01	40	36	38	50	-06	40	68					-03	55.97	8.23	-077
9	-15	21	-15	04	-16	08	28	03	04	14	31				-09	57.08	10.39	-043
0	-13	35	-46	08	59	-12	-04	-16	21	39	21	-27			01	50.40	9.49	004
Yr GPA	-03	-10	01	-06	-03	01	-10	-14	-04	-05	-08	-12	03		---	2.24	.87	---
Aptitude	-04	-09	04	-05	-08	00	-08	-18	04	-07	-02	-08	04	53		128.14	25.49	---

Note Decimal points omitted

Multiple R = .56

.05 level = .06

.01 level = .08

Table QQ

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for First Sixth of Minnesota Males

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-10	3.08	2.18
F	-06														-03	4.11	3.04
K	42	-30													-02	14.34	4.19
1	16	15	42												-02	50.82	8.58
2	07	22	-08	30											00	50.97	10.23
3	13	03	42	65	23										16	54.53	7.62
4	14	32	30	51	28	46									-05	55.28	9.59
5	-08	30	-25	22	33	30	11								23	55.05	9.05
6	-01	25	-01	23	05	23	36	25							-07	52.66	7.91
7	-14	42	-11	48	48	33	51	43	44						05	56.02	10.94
8	-13	60	-03	47	36	31	51	41	43	79					05	55.86	10.58
9	-16	32	-32	03	-16	-06	30	09	22	32	38				-11	56.49	10.34
0	-12	35	-47	-07	45	-27	-04	28	16	44	34	01			05	48.67	8.54
Yr GPA	-10	-03	-02	-02	00	16	-05	23	-07	05	05	-11	05		---	1.67	.68
Aptitude	-03	-02	01	-01	17	-13	22	-06	-07	-09	-09	-06	-10	01	---	---	---

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table RR

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Second Sixth of Minnesota Males

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															05	3.10	2.31
F	-14														-06	3.82	3.38
K	42	-50													-02	16.11	4.90
1	16	-14	50												04	51.68	7.30
2	21	28	-03	20											15	49.77	9.51
3	21	-16	44	71	36										08	55.56	7.70
4	07	11	33	41	41	49									12	55.78	10.45
5	07	11	-17	08	38	21	18								25	53.83	9.14
6	07	16	17	28	37	44	29	23							15	52.18	7.78
7	-06	25	03	37	58	39	51	32	44						-01	54.63	10.00
8	-07	47	10	38	40	37	62	27	45	72					-08	55.09	10.43
9	-10	36	-28	-01	03	05	41	16	-13	29	40				-08	54.54	9.75
0	-14	42	-49	-16	40	-26	-14	26	-05	31	14	03			-01	46.68	8.39
Yr GPA	05	-06	-02	04	15	08	11	25	15	-01	-08	-08	-01		---	1.79	.72
Aptitude	-06	-02	01	15	08	09	25	15	-11	01	-09	15	05	-01	---	---	---

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table SS

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Third Sixth of Minnesota Males

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															09	3.05	2.19
F	-16														-12	4.37	3.67
K	46	-46													03	15.04	4.98
1	08	26	27												-07	52.34	7.82
2	06	40	-22	30											01	52.87	11.28
3	21	09	40	70	20										-04	55.27	8.21
4	-10	27	17	34	31	41									-04	58.35	10.13
5	-07	32	-24	34	34	29	20								09	56.18	9.59
6	-01	44	-10	26	31	25	30	38							08	55.36	9.00
7	-28	49	-20	38	56	23	50	37	47						00	57.60	10.34
8	-27	66	-18	47	41	28	52	33	50	76					-14	59.24	12.02
9	-30	40	-31	14	-11	10	27	19	23	33	44				03	57.55	10.14
0	-09	44	-56	-01	54	-26	07	28	14	40	29	-08			-02	48.53	9.86
Yr GPA	09	-12	03	-07	01	-04	-04	09	08	00	-14	03	-02		---	1.80	.67
Aptitude	-12	04	00	02	03	03	11	09	01	06	04	19	09	-02	---	---	---

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table TT

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fourth Sixth of Minnesota Males

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															14	2.92	1.84
F	-16														-18	4.30	3.32
K	37	-48													05	14.78	4.38
1	27	16	25												-03	51.83	8.62
2	13	18	-01	46											06	50.57	8.84
3	27	12	33	59	37										-06	55.09	8.70
4	09	18	29	37	30	46									-29	57.82	10.10
5	-04	12	-22	20	25	29	08								06	55.42	10.40
6	02	31	-13	20	33	39	29	46							-13	52.92	8.26
7	02	09	02	49	54	34	35	35	38						-05	54.40	10.16
8	-06	29	02	52	40	41	43	37	44	80					-17	56.95	12.04
9	-10	31	-26	02	-13	10	26	21	19	21	34				-17	57.24	10.42
0	-15	24	-43	06	42	-22	-21	09	08	35	31	-21			13	47.39	8.39
Yr GPA	12	-17	05	-02	05	-09	-28	04	-13	-04	-18	-16	14	05	---	1.89	.74
Aptitude	-16	06	02	06	-09	-21	05	-13	-03	07	-15	07	11	13	---	---	---

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table UU

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fifth Sixth of Minnesota Males

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															10	2.64	1.87
F	-12														05	4.41	3.21
K	41	-40													02	14.54	4.78
1	13	23	26												10	51.47	8.28
2	9	12	-10	27											05	51.04	11.03
3	21	37	18	50	31										02	55.84	8.75
4	05	35	03	40	14	28									01	59.15	8.92
5	-23	16	-27	17	23	08	00								09	59.90	10.65
6	-02	41	-11	38	32	40	-25	38							18	55.12	8.33
7	-22	35	-12	50	50	34	33	37	54						08	57.29	10.48
8	-13	63	-09	53	24	44	48	30	56	70					-01	58.52	10.61
9	-12	44	-27	23	-28	02	30	06	04	07	34				-04	56.85	11.44
0	-20	35	-52	-03	46	-03	05	25	-02	50	28	-17			04	49.95	9.85
Yr GPA	10	05	02	06	14	04	02	10	18	09	-02	-04	01		—	1.95	.69
Aptitude	03	01	-06	17	08	-03	12	16	01	13	-11	-10	10	05	—	—	—

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table VV

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Sixth Sixth of Minnesota Males

(N = 131)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-02	2.96	1.82
F	-08														-04	4.19	3.45
K	46	-45													01	15.89	4.87
1	26	14	46												01	51.81	6.98
2	16	21	-12	15											20	51.44	9.20
3	35	10	42	64	27										01	56.22	6.83
4	09	32	15	32	17	50									-16	58.47	9.90
5	07	26	-13	14	36	26	19								09	60.97	10.65
6	14	26	09	34	16	41	46	38							-02	55.33	8.77
7	03	22	03	39	45	28	37	39	48						-01	55.95	8.99
8	01	51	-02	48	26	37	50	39	55	62					-01	58.21	10.25
9	-18	34	-24	10	-23	10	-43	00	28	17	40				-31	57.36	10.71
0	-10	29	-54	-13	51	-22	-17	35	-06	30	20	-20			16	48.06	8.58
Yr GPA	-03	-04	00	04	20	00	-15	09	00	01	-03	-26	15		—	2.58	.77
Aptitude	-04	00	-05	20	-02	-08	07	-01	12	12	-26	23	-05	15	—	—	—

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table WW

Multiple Correlation, Beta Weights, and Intercorrelation

Matrix for Total Group of Minnesota Males

(N = 783)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															03	2.96	2.05	-091
F	-12														-04	4.20	3.36	006
K	42	-43													-01	15.12	4.83	193
1	17	14	35												00	58.12	17.43	-050
2	11	24	-10	28											09	57.50	15.89	-042
3	22	10	36	62	28										01	62.35	18.96	002
4	04	26	21	39	27	43									-08	64.66	18.78	117
5	-06	22	-20	19	31	23	15								13	64.01	18.34	198
6	02	32	-02	28	26	35	34	37							02	60.67	18.12	048
7	-12	31	-07	44	52	32	43	37	46						-01	62.98	17.97	-183
8	-12	53	-04	48	35	36	51	36	50	74					-08	64.48	18.08	051
9	-16	36	-28	09	-14	06	33	13	16	23	39				-11	63.76	15.34	090
0	-14	35	-51	-05	47	-20	-06	26	10	40	27	-10			04	54.24	15.85	119
Yr GPA	02	-05	03	01	09	04	-03	19	06	02	-04	-08	05		—	2.19	.37	—
Aptitude	-03	03	06	04	02	08	13	24	12	03	09	06	02	37	—	—	—	—

Notes: Decimal points omitted

.05 level = .07

.01 level = .09

Multiple R = .46

Table XX

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for First Sixth of Minnesota Females

(N = 116)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															00	4.30	4.93
F	-20														-22	4.10	3.98
K	58	-36													12	14.54	5.97
1	10	31	22												-05	49.39	7.29
2	-10	36	-34	42											-06	51.07	8.31
3	13	13	26	72	38										-08	53.87	8.20
4	06	14	12	27	31	35									-12	54.91	9.42
5	03	07	-02	02	-23	02	-14								-05	52.97	8.93
6	-11	21	-18	26	33	29	34	-22							-26	52.90	8.59
7	-23	39	-25	38	66	35	47	-23	53						-19	54.63	9.03
8	-09	57	-06	54	47	45	52	-14	56	72					-14	55.06	8.58
9	-12	25	-16	14	-02	10	19	-11	28	25	31				-18	55.83	10.98
0	-24	32	-61	-02	55	-13	06	-19	18	41	27	-11			-04	51.49	9.44
Yr GPA	00	-18	11	-05	-07	-08	-13	-06	-26	-19	-15	-19	-03		---	1.79	.96
Aptitude	01	15	-06	-04	-15	-05	-12	-20	-02	-17	-17	-17	21	07	---	26.09	6.00

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table YY

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Second Sixth of Minnesota Females

(N = 116)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															15	3.78	2.13
F	-27														-12	3.68	3.10
K	45	-35													07	15.95	4.39
1	15	18	27												-10	49.24	5.96
2	02	47	-20	18											13	48.89	7.82
3	13	22	15	58	36										.05	53.90	7.44
4	-15	53	-06	26	39	45									-20	57.56	10.62
5	00	-03	02	02	-25	-08	-06								-12	51.43	8.56
6	-18	48	-07	24	36	35	55	-16							02	54.20	8.94
7	-24	42	-17	27	55	30	46	-24	49						02	52.93	8.04
8	-27	66	-13	46	33	39	59	-02	49	64					-14	54.93	8.16
9	-29	31	-30	05	-16	-01	32	-02	09	10	48				-19	54.00	10.41
0	-04	30	-44	-06	56	-14	05	-11	06	49	15	-22			12	48.82	9.33
Yr GPA	14	-12	06	-08	12	-06	-22	-12	02	02	-12	-17	13		---	1.94	.62
Aptitude	-09	03	-04	15	-09	-08	-14	01	00	03	12	10	09	14	---	35.12	1.88

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table ZZ

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Third Sixth of Minnesota Females

(N = 116)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															18	3.25	2.28
F	-25														-27	3.42	2.99
K	50	-38													21	15.88	4.46
1	10	03	42												09	48.70	5.95
2	-10	33	-21	26											-07	47.68	7.68
3	16	05	45	63	18										07	53.60	6.47
4	-14	24	17	31	29	46									-17	55.30	8.94
5	04	05	07	02	-26	-09	-11								00	50.78	8.84
6	-08	27	-06	22	33	42	25	-23							02	53.91	7.22
7	-30	30	-11	38	55	26	33	-11	51						00	53.46	7.51
8	-27	46	-05	37	39	29	48	00	48	71					-06	54.94	8.54
9	-30	26	-18	-02	03	06	40	-21	19	28	42				-02	55.96	10.73
0	-15	28	-55	-06	46	-28	-20	-14	12	35	21	-14			-03	48.51	9.12
Yr GPA	18	-27	20	09	-07	07	-17	00	02	00	-05	-02	-03		---	2.12	.79
Aptitude	-26	18	15	-09	07	-05	00	01	-08	-12	01	16	19	-02	---	41.57	1.84

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table AAA

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Fourth Sixth of Minnesota Females

(N = 116)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															05	3.75	2.06
F	-32														-11	3.88	3.09
K	45	-41													02	15.84	4.26
1	12	01	32												-08	49.79	6.75
2	-05	-01	-03	46											05	47.88	9.27
3	12	02	34	69	23										-06	54.25	7.40
4	08	32	31	28	23	40									-16	56.15	9.54
5	03	18	-02	-06	-37	-04	00								-10	50.30	9.32
6	-12	-02	11	26	43	32	25	-32							06	52.69	9.78
7	-11	14	02	54	62	37	31	-26	41						-04	53.25	8.80
8	-15	33	04	56	50	40	48	-16	44	72					-05	55.61	8.69
9	-27	26	-25	11	02	16	18	-09	25	17	42				-17	57.44	10.13
0	-15	17	-50	-13	45	-34	-12	-12	00	29	21	-15			07	48.76	8.61
Yr GPA	04	-11	01	-08	04	-07	-16	-10	06	-04	-17	-17	07		—	2.21	.65
Aptitude	-13	02	-07	04	-11	-06	-04	06	-01	02	-20	00	-01	08	—	47.74	1.85

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table BBB

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude for Fifth Sixth of Minnesota Females (N = 116)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															03	3.34	2.06
F	-23														-05	3.50	2.67
K	47	-47													09	14.61	4.75
1	03	10	32												-15	49.15	6.15
2	-04	27	-19	10											21	49.14	7.92
3	-01	18	16	54	21										-12	53.81	6.50
4	-22	28	10	36	31	34									-11	55.34	9.27
5	-08	16	-11	06	-16	00	11								-06	48.84	8.72
6	-04	37	-20	00	32	28	32	-16							-12	54.36	9.31
7	-20	34	-08	45	49	33	51	-09	39						00	53.26	8.70
8	-33	46	-06	47	25	32	57	05	33	71					-08	54.67	7.93
9	-37	35	-22	10	-14	21	42	-05	22	24	49				-29	55.31	11.11
0	-13	32	-52	-08	59	-22	-07	-05	14	35	10	-29			18	50.32	9.49
Yr GPA	02	-04	08	-11	19	-14	-13	-08	-13	-02	-12	-27	19		----	2.42	.63
Aptitude	-03	07	-03	20	-10	-11	-13	-11	-08	-09	-25	09	04	19	----	54.57	2.09

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table CCC

Intercorrelation Matrix of MMPI, First Year GPA, and Aptitude

for Sixth Sixth of Minnesota Females

(N = 118)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD
L															-02	3.07	1.93
F	-17														-02	3.71	3.11
K	42	-49													-05	15.73	4.51
1	12	26	11												04	49.91	6.85
2	09	31	-16	36											17	49.57	8.09
3	11	05	16	57	40										28	55.22	7.29
4	-14	33	08	27	28	42									-14	55.95	9.07
5	-15	21	-03	-13	-10	-13	16								-08	48.25	9.44
6	-18	20	-28	17	33	33	34	-04							-02	56.78	9.20
7	-11	37	-18	47	57	40	48	-02	43						-10	54.75	8.93
8	-23	58	-19	40	36	29	54	17	47	75					-14	56.62	8.86
9	-39	35	-37	-02	-14	01	32	09	28	20	39				-29	55.14	8.89
0	-08	46	-46	22	55	-02	00	-12	24	47	36	-12			15	49.90	6.59
Yr GPA	-03	-03	-05	06	16	00	-15	-08	-03	-11	-12	-24	14		—	2.80	.72
Aptitude	-07	-07	01	15	-03	-20	-05	00	-04	-09	11	23	-05	15	—	64.36	3.62

Note: Decimal points omitted

.05 level = .20

.01 level = .25

Table DDD

Multiple Correlation, Beta Weights, and Intercorrelation Matrix

for Total Groups of Minnesota Females

(N = 698)

Variables	L	F	K	1	2	3	4	5	6	7	8	9	0	Yr GPA	Partial r	Mean	SD	Beta
L															18	3.58	2.82	-094
F	02														06	3.72	3.19	146
K	45	-37													12	15.42	4.80	193
1	13	-17	66												06	47.60	11.21	003
2	03	28	-16	10											08	47.30	12.25	-154
3	-11	00	20	60	25										13	52.19	12.36	098
4	09	-06	43	45	09	35									10	53.88	14.01	052
5	-11	02	-03	02	-23	01	-01								-11	48.61	12.97	-109
6	-10	21	-08	09	32	34	16	-16							10	52.21	13.40	157
7	04	-09	30	28	10	21	24	-10	14						11	51.79	13.06	-067
8	-15	-13	25	33	-02	25	37	00	09	51					06	53.33	13.26	-015
9	-29	05	-02	15	-12	24	16	00	18	13	21				-09	53.61	14.79	095
0	03	34	-46	-31	53	-23	-23	-15	11	-08	-18	-31			-01	47.87	12.94	140
Yr GPA	06	-08	08	01	04	-04	-08	-14	00	-03	-07	-13	08		----	2.13	.88	---
Aptitude	-21	-07	00	07	-05	11	02	-13	12	00	06	08	-06	57	----	43.70	15.00	412

Note: Decimal points omitted

Multiple R = .68

.05 level = .08

..01 level = .10

Table EEE

Summary of Zero-Order Correlations between MMPI

and Aptitudes in the Total Samples

Sample	L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
Males													
Iowa(1958)	-11	-08	13	07	-10	06	01	18	09	-04	03	-04	-01
Iowa(1959)	-10	-08	09	01	-03	06	-05	24	05	-02	-03	-14	C3
Wisconsin	-04	-11	11	-07	00	00	-06	15	03	-07	-07	-13	C2
Minnesota	-03	03	06	04	02	08	13	24	12	03	09	06	02
Females													
Iowa(1958)	-03	-18	18	03	-07	04	-01	-20	12	-03	-02	-09	02
Iowa(1959)	-07	-13	10	-01	-02	00	-03	-24	12	-05	-04	-16	C7
Wisconsin	-04	-09	04	-05	-08	00	-03	-18	04	-07	-02	-08	04
Minnesota	-21	-07	00	07	-05	11	02	-13	12	00	06	08	06